MHC-EX7/EX9AV/EX10AV

SERVICE MANUAL

AEP Model
UK Model
MHC-EX7/EX9AV/EX10AV

E Model
Australian Model
MHC-EX9AV/EX10AV

MHC-EX7, MHC-EX9AV and MHC-EX10AV are composed of following models. As for the service manual, it is issued for each component model, then, please refer to it.

COMPONENT MODEL NAME FOR MHC-EX7, MHC-EX9AV and MHC-EX10AV

System / Component	MHC-EX7	MHC-EX9AV	MHC-EX10AV
Tuner	ST-EX10	ST-EX10	ST-EX10
Amplifier	TA-EX7	TA-EX9	TA-EX10
CD Player	CDP-EX10	CDP-EX10	CDP-EX10
Cassette Deck	TC-EX7	TC-EX10	TC-EX10
Speaker System	SS-EX70	SS-EX90CR (AEP, UK, G, IT Model) SS-EX90G (E, EA, MY, HK, SP, CH, AUS Model) SS-CN12, SS-SR12 (E, EA, MY, HK, SP, CH, AUS Model)	SA-EX100

SPECIFICATIONS

Supplied accessories
AM loop aerial (1)
Remote RM-S75 (1) (EX7)
Remote RM-U95 (1) (EX9AV/EX10AV)
Sony SUM-3 (NS) batteries (2)
FM lead aerial (1)
Flat cord (1)
Audio cords (4)
Mains leads (2) (EX9AV/EX10AV) (for connecting speakers)
Speaker connecting cords (2)
(EXCEPT EX9AV:E,AUS,EA,MY,SP,CH,HK)
Speaker cords (5) (EX9AV:E,AUS,EA,MY,SP,CH,HK)
Feet for center speaker (4) (EX9AV:E,AUS,EA,MY,SP,CH,HK)

General
Power requirements
AEP,G,IT model : 220 – 230V AC, 50/60Hz
UK model : 240V AC, 50Hz
E,AUS,EA,MY,SP,CH,HK model
: 110 - 120V/220 - 240V AC, 50/60Hz
Adjustable
Power consumption
EX7 : 170W (SYSTEM)
EX9AV : 200W (SYSTEM)
EX10AV : 85W (active speaker not included)

Design and specifications are subject to change without notice.

- Abbreviation

EA	: Saudi Arabia	SP	: Singapore
AUS	: Australian	HK	: Hong Kong
MY	: Malaysia	IT	: Italian
G	: German	CH	: Chinese

MINI Hi-Fi COMPONENT SYSTEM

SONY®

MICROFILM

PARTS LIST (Accessories & Packing Materials)

NOTE :

- Items marked " * "are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- Abbreviation

EA	: Saudi Arabia	SP	: Singapore
AUS	: Australian	HK	: Hong Kong
MY	: Malaysia	IT	: Italian
G	: German	CH	: Chinese

Part No.	Description
1-467-923-11	COMMANDER, STANDARD (RM-S75) (EX7)
1-467-922-11	COMMANDER, STANDARD (RM-U95) (EX9AV, EX10AV)
1-501-374-11	ANTENNA, LOOP
1-501-594-31	ANTENNA (FM)
1-558-271-11	CORD, CONNECTION
1-769-170-11	CORD (WITH CONNECTOR) (7P)
1-769-317-11	CORD, SPEAKER (SS-EX90G)
1-769-433-11	CORD, SPEAKER (EX9AV:E, AUS, EA, MY, SP, CH, HK)
1-769-433-21	CORD, SPEAKER (EX9AV:E, AUS, EA, MY, SP, CH, HK)
1-775-438-11	CORD, CONNECTION 2P-3P (EX10AV:E, AUS, EA, SP, CH, MY, HK)
3-707-584-21	COVER, BATTERY (For RM-S75) (EX7)
3-798-948-11	MANUAL, INSTRUCTION (ENGLISH/FRENCH/SPANISH/PORTUGUESE) (EX7:AEP, UK)
3-798-948-41	MANUAL, INSTRUCTION (GERMAN/DUTCH/SWEDISH/ITALIAN) (EX7:AEP, IT)
3-798-948-51	MANUAL, INSTRUCTION (GERMAN) (EX7:G)
3-798-971-11	MANUAL, INSTRUCTION (ENGLISH/FRENCH/SPANISH/PORTUGUESE) (EX9AV:AEP, UK)
3-798-971-41	MANUAL, INSTRUCTION (GERMAN/DUTCH/SWEDISH/ITALIAN) (EX9AV:AEP, IT)
3-798-971-51	MANUAL, INSTRUCTION (GERMAN) (EX9AV:G)
3-798-971-61	MANUAL, INSTRUCTION (ENGLISH/FRENCH/SPANISH/CHINESE) (EX9AV:E, EA, MY, SP, CH, AUS, HK)
3-798-971-71	MANUAL, INSTRUCTION (ARABIC) (EX9AV:EA)
3-798-972-11	MANUAL, INSTRUCTION (ENGLISH/FRENCH/SPANISH/PORTUGUESE) (EX10AV:AEP, UK)
3-798-972-41	MANUAL, INSTRUCTION (GERMAN/DUTCH/SWEDISH/ITALIAN) (EX10AV:AEP, IT)
3-798-972-51	MANUAL, INSTRUCTION (GERMAN) (EX10AV:G)
3-798-972-61	MANUAL, INSTRUCTION (ENGLISH/FRENCH/SPANISH/CHINESE) (EX10AV:E, EA, MY, SP, CH, AUS, HK)
3-798-972-71	MANUAL, INSTRUCTION (ARABIC) (EX10AV:EA)
4-956-911-11	COVER, BATTERY (For RM-U95) (EX9AV, EX10AV)
4-972-322-01	FOOT (Y) (EX9AV:E, AUS, EA, MY, SP, CH, HK)
* 4-972-564-01	BOX, SS (EX9AV:E, AUS, EA, MY, SP, CH, HK)
* 4-972-565-01	CUSHION (PM) (FRONT) (EX7, EX9AV, EX10AV:AEP)
* 4-972-566-01	CUSHION (PM) (REAR) (EX7, EX9AV, EX10AV:AEP)
* 4-972-567-01	INDIVIDUAL CARTON (EX10AV:AEP)
* 4-972-567-11	INDIVIDUAL CARTON (EX9AV:AEP)
* 4-972-567-21	INDIVIDUAL CARTON (EX7:AEP)
* 4-972-597-02	CUSHION (TCC) (FRONT) (EX9AV/EX10AV:E, AUS, EA, MY, SP, CH, HK)
* 4-972-598-02	CUSHION (TCC) (REAR) (EX9AV/EX10AV:E, AUS, EA, MY, SP, CH, HK)
* 4-972-599-01	CUSHION (S) (FRONT) (EX9AV/EX10AV:E, AUS, EA, MY, SP, CH, HK)
* 4-972-600-01	CUSHION (S) (REAR) (EX9AV/EX10AV:E, AUS, EA, MY, SP, CH, HK)
* 4-972-602-01	INDIVIDUAL CARTON (EX10AV:E, EA, SP, CH, MY, HK)
* 4-972-602-11	INDIVIDUAL CARTON (EX10AV:AUS)
* 4-972-603-01	INDIVIDUAL CARTON (EX9AV:E, AUS, EA, MY, SP, CH, HK)
* 4-972-606-01	CUSHION (SS) (EX9AV:E, AUS, EA, MY, SP, CH, HK)
* 4-972-607-01	CUSHION (SSC) (EX9AV:E, AUS, EA, MY, SP, CH, HK)
* 4-975-548-01	CUSHION (EX90) (SS-EX90G)

The following packing materials are used for separate packing of the tuner.

* 4-972-576-01	CUSHION (PM2) (FRONT) (EX7, EX9AV, EX10AV:AEP, UK, G, IT)
* 4-972-577-01	CUSHION (PM2) (REAR) (EX7, EX9AV, EX10AV:AEP, UK, G, IT)
* 4-972-578-01	INDIVIDUAL CARTON (EX10AV:AEP, UK, G, IT)
* 4-972-578-11	INDIVIDUAL CARTON (EX9AV:AEP, UK, G, IT)
* 4-972-578-21	INDIVIDUAL CARTON (EX7:AEP, UK, G, IT)

9-960-263-11

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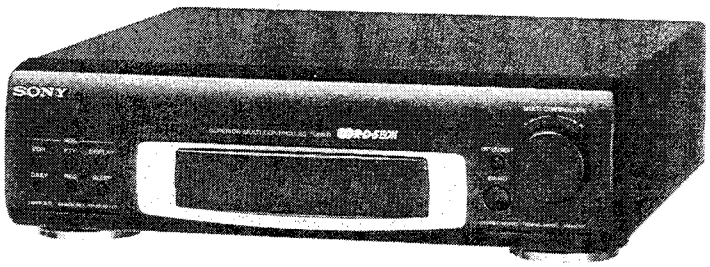
Quality Engineering Dept.

ST-EX10

SERVICE MANUAL

AEP Model
UK Model
E Model
Australian Model
Tourist Model



This set the tuner section in
MHC-EX5, EX7, EX9AV, EX10AV.

SPECIFICATIONS

FM stereo, FM/AM superheterodyne tuner

FM tuner section

Tuning range
East European model :
FM1 : 65-74MHz
FM2 : 87.5-108MHz
EXCEPT East European model : 87.5 – 108.0 MHz
(50kHz step)
Antenna terminals 75 ohm unbalanced
Intermediate frequency
10.7 MHz

AM tuner section

Tuning range
AEP, UK, East European, German model :
MW : 531-1,602kHz
LW : 153-279kHz
Italian model :
MW : 522-1,611kHz (9kHz step)
LW : 153-279kHz
E, Saudi Arabia, Hong Kong, Mexican, Malaysia, Singapore, Australian, Tourist model :
MW : 531-1,602kHz (9kHz step)
530-1,710kHz (10kHz step)
SW : 5.95-17.9kHz
(E3, Saudi Arabia, Hong Kong, Malaysia, Singapore, Tourist model)
Aerial AM loop aerial
External aerial terminals
Intermediate frequency
450 kHz
Dimensions
Approx. 280 x 85 x 290 mm (w/h/d)
(11 1/8 x 3 3/8 x 11 1/2 inches)
Mass Approx. 1.6 kg (3 lb 9 oz)

MICROFILM

STEREO TUNER

SONY®

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SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SERVICING NOTE

• POWER SUPPLIED WHILE SERVICING

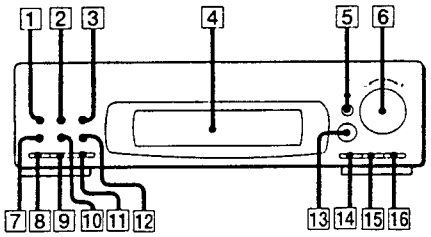
This unit does not work independently because of not having the power supply.
It must be unite together with the other units when repaired.

SECTION 1
GENERAL

This section is extracted from instruction manual.

Front Panel

Tuner



1 EON (Enhanced Other Networks) button
2 PTY (Programme Type) button
(AEP, UK, German, Italian, East European model)

1 MEMORY button
2 STEREO/MONO button
(Australian, E, Saudi Arabia, Mexican, Malaysia, Singapore, Hong Kong, Tourist, CIS model)

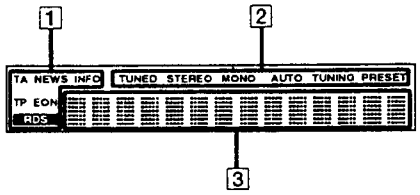
3 DISPLAY button
4 Display window button
5 ENTER/NEXT button
6 MULTI CONTROLLER
7 DAILY button
8 TIMER SET button
9 CLOCK SET button
10 REC button
11 CHARACTER button
12 SLEEP button
13 BAND button

14 STEREO/MONO button
15 TUNING MODE button
16 MEMORY button
(AEP, UK, German, Italian, East European model)

14 MANUAL button (TUNING MODE)
15 AUTO button (TUNING MODE)
16 PRESET button (TUNING MODE)
(Australian, E, Saudi Arabia, Mexican, Malaysia, Singapore, Hong Kong, Tourist, CIS model)

Display Window

Tuner



1 RDS service indications
2 Tuner indication
3 Frequency/station name/time/timer indication

SECTION 2
ELECTRICAL ADJUSTMENTS

Precautions in Repairing

If the front unit fails, it is difficult to repair the inner circuits, so replace the entire front end unit.

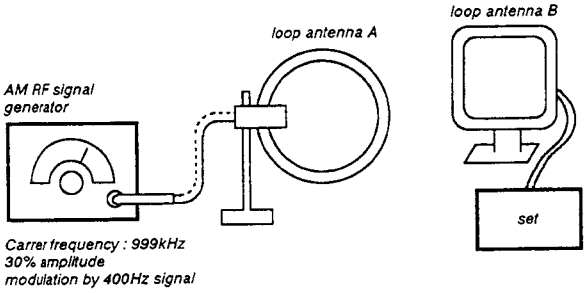
The FM TUNED level must be adjusted after the AM TUNED level adjustment has completed.

AM SECTION

AM Tuning Level Adjustment

Setting :

BAND switch : MW (AM)



Procedure :

1. Set loop antenna A so that the loop antenna B input level becomes 55dBμ/m .
2. Tune the set to 999kHz.
3. Adjust RV1 so that the TUNED indicator goes on.

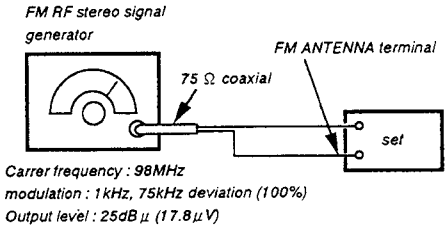
Adjustment Location : MAIN board. (See page 4)

FM SECTION

FM Tuning Level Adjustment

Setting :

BAND switch : FM



Procedure :

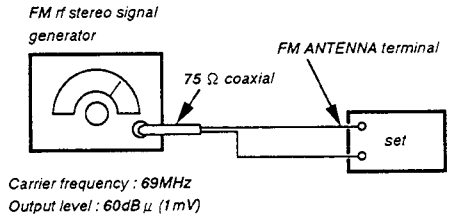
1. Tune the set to 98MHz.
2. Adjust RV2 so that the TUNED indicator goes on.

Adjustment Location : MAIN board. (See page 4)

FM POLAR Adjustment (CIS model only)

Setting :

BAND switch : FM



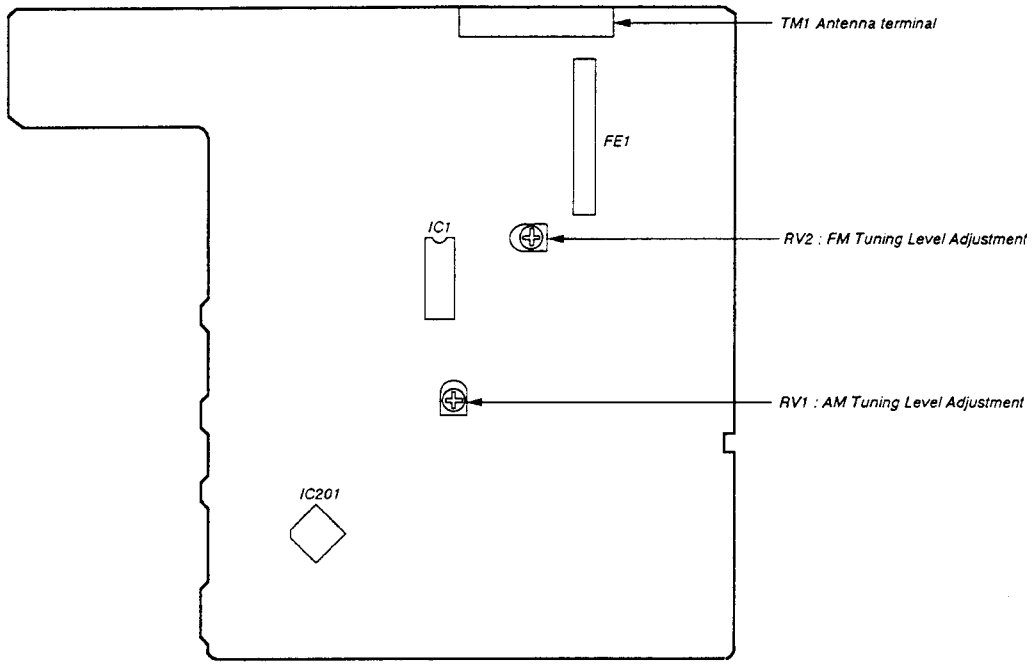
Procedure :

1. Connect the frequency counter to the TP1702 and adjust the RV1702 for a frequency of 31.25kHz ± 50Hz.
2. Connect the VTVM to the TP1701, receive the signal of 69MHz ± 1kHz (1kHz dev.) and adjust the reading of the VTVM to 0dB.
3. Set the modulation frequency of the FM RF signal generator to 31.25kHz (10kHz dev.) and adjust the L1701 and CT1701 so that the reading of the VTVM is 0dB.
4. Adjust the RV1701 so that the reading of the VTVM to 14dB.
5. Check that the separation between pins 13 and 11 of the CN1701 is more than 18dB.

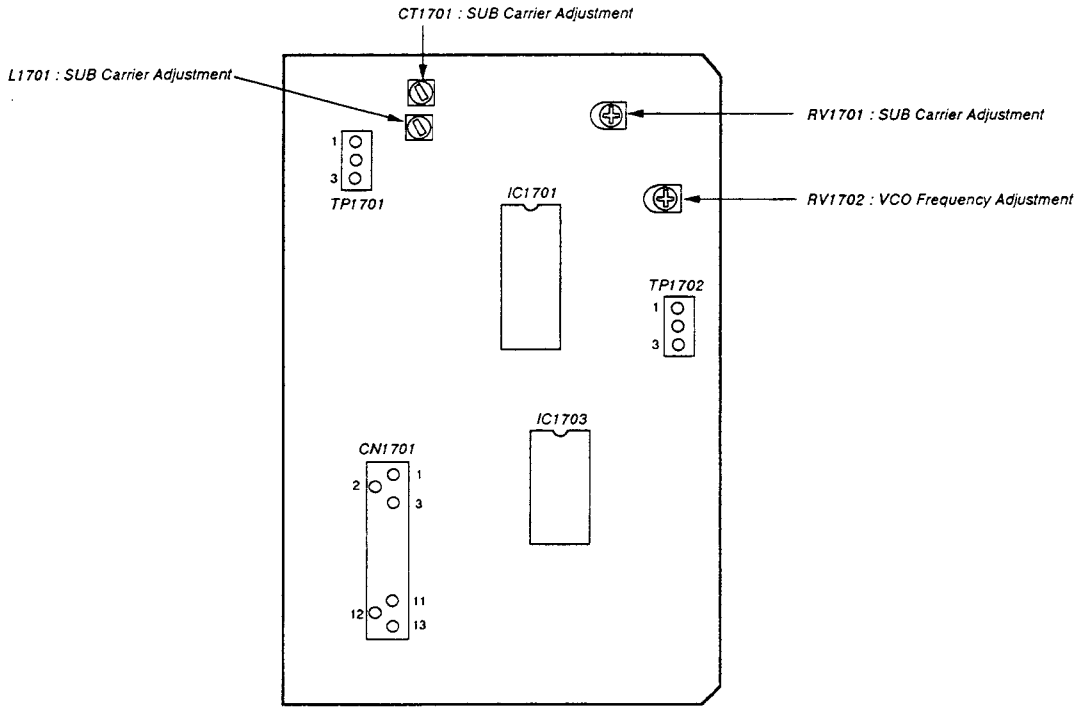
Adjustment Location : POLAR board. (See page 4)

Adjustment Location :

【MAIN BOARD 】 – Component side –



【POLAR BOARD 】 – Component side –



SECTION 3
EXPLANATION OF IC TERMINALS

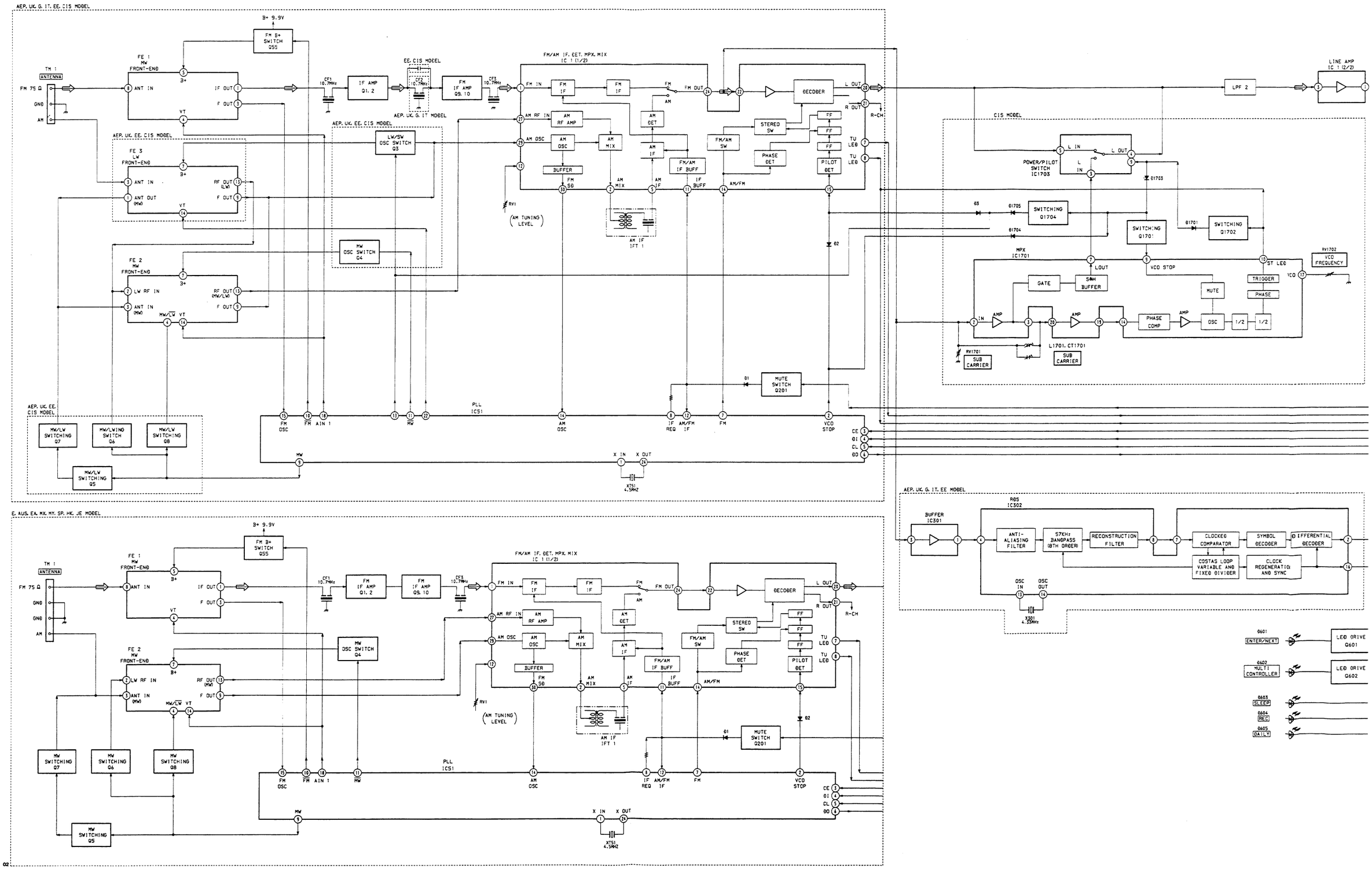
IC201 μPD78013GC

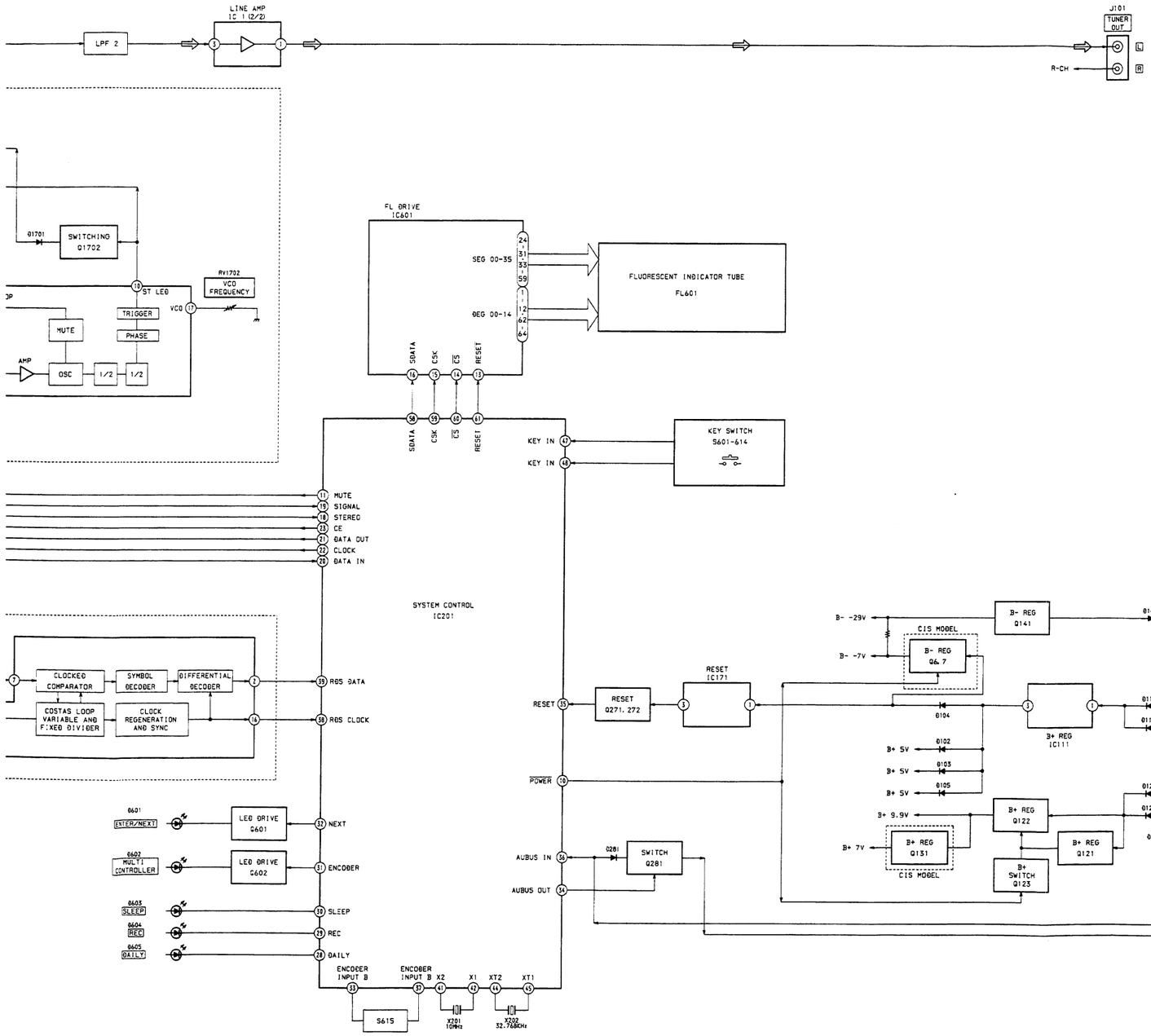
Pin No.	Pin name	I/O	Description
1 – 4	MODEL	I	Model selection.
5	IF+50	I	Not used. (GND connected)
6	IF – 50	O	Not used. (GND connected)
7	BACK UP	I	Back up mode input terminal.
8	NC	–	Not used.
9	Vss	–	Power supply (GND).
10	$\overline{\text{POWER}}$	O	Power ON/OFF control.
11	MUTE	O	Mute signal output terminal.
12	ANLOG BUS	–	Since it is not used.
13	NC	–	Not used. (Open)
14	NC	–	Not used. (Open)
15	AM MONO	–	Since it is not used.
16	AM/FM	–	Since it is not used.
17	IFNG	–	Since it is not used.
18	STEREO	I	FM/AM stereo identification. L : Stereo
19	SIGNAL	I	FM/AM tuning identification. L : Tuning
20	DATA IN	I	Serial data input from tuner. (PLL IC)
21	DATA OUT	O	Serial data output to tuner. (PLL IC)
22	CLOCK	O	System clock output to tuner. (PLL IC)
23	CE	O	Chip enable output to tuner. (PLL IC)
24	Vss	–	Power supply. (GND)
25	NC	–	Not used. (Open)
26	NC	–	Not used. (Open)
27	ONCE	O	Once LED drive. (Since it is not used)
28	DAILY	O	Daily LED drive.
29	REC	O	REC LED drive.
30	SLEEP	O	Sleep LED drive.
31	ENCODER	O	Encoder LED drive.
32	NEXT	O	Next LED drive.
33	ENCODER IN B	I	Encoder B input terminal.
34	AU BUS OUT	O	Audio bus output terminal.
35	RESET	I	Reset terminal.
36	AU BUS IN	I	Audio bus input terminal.
37	EMCODER IN A	I	Encoder A input termihal.
38	RDS-CLOCK	I	RDS clock input termihal.
39	RDS-DATA	I	RDS data input termihal.
40	VDD	–	Power supply. (+5V)
41	X2	O	System main clock. (10MHz)
42	X1	I	System main clock. (10MHz)
43	GND	–	Power supply. (GND)
44	XT2	O	System sub clock. (32.768kHz)
45	XT1	I	System sub clock. (32.768kHz)

Pin No.	Pin name	I/O	Description
46	GND	–	Power supply. (GND)
47	KEY IN K1	I	Key input terminal.
48	KEY IN K2	I	Key input terminal.
49	KEY IN	I	Key input terminal. (Since it is not used, it is +5V connected)
50	GND	–	Power supply. (GND)
51	GND	–	Power supply. (GND)
52	GND	–	Power supply. (GND)
53	GND	–	Power supply. (GND)
54	GND	–	Power supply. (GND)
55	AV_{DD}	–	Analog power supply. (+5V)
56	AV_{REF}	–	Analog reference voltage terminal.
57	GND	–	Analog power supply. (GND)
58	S DATA	O	Serial data output to FL DRIVER. (M66004FP)
59	SCK	O	System clock output to FL DRIVER. (M66004FP)
60	$\overline{CS}$	O	Serial Chip select output to FL DRIVER. (M66004FP)
61	RESET	O	Reset signal output to FL DRIVER. (M66004FP)
62	ERRORS	I	Serial data input terminal.
63	CORRECTION	O	Serial data output terminal.
64	RECEIVED	O	System clock output terminal.

SECTION 4
DIAGRAMS

4-1. BLOCK DIAGRAM



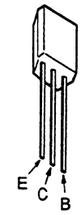


- Signal path.
  ⇨ : FM
- Abbreviation

EE	: East European	EA	: Saudi Arabia
JE	: Tourist	MX	: Mexican
IT	: Italian	MY	: Malaysia
G	: German	SP	: Singapore
AUS	: Australian	HK	: Hong Kong

• SEMICONDUCTOR LEAD LAYOUTS

DTA114ES
DTC114ES
2SC2603-EF
2SC2669-OY



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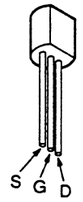
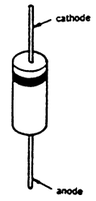


UZP-4.7B



HZS7B3L
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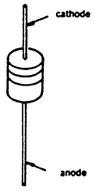
UZL-7M1-TA
UZL-27H
11ES2



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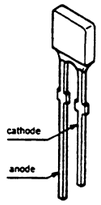

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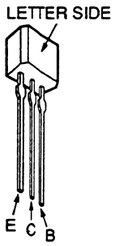
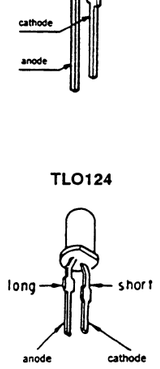


TLO124



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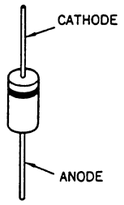
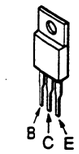


2SB1094-LK
2SD2012



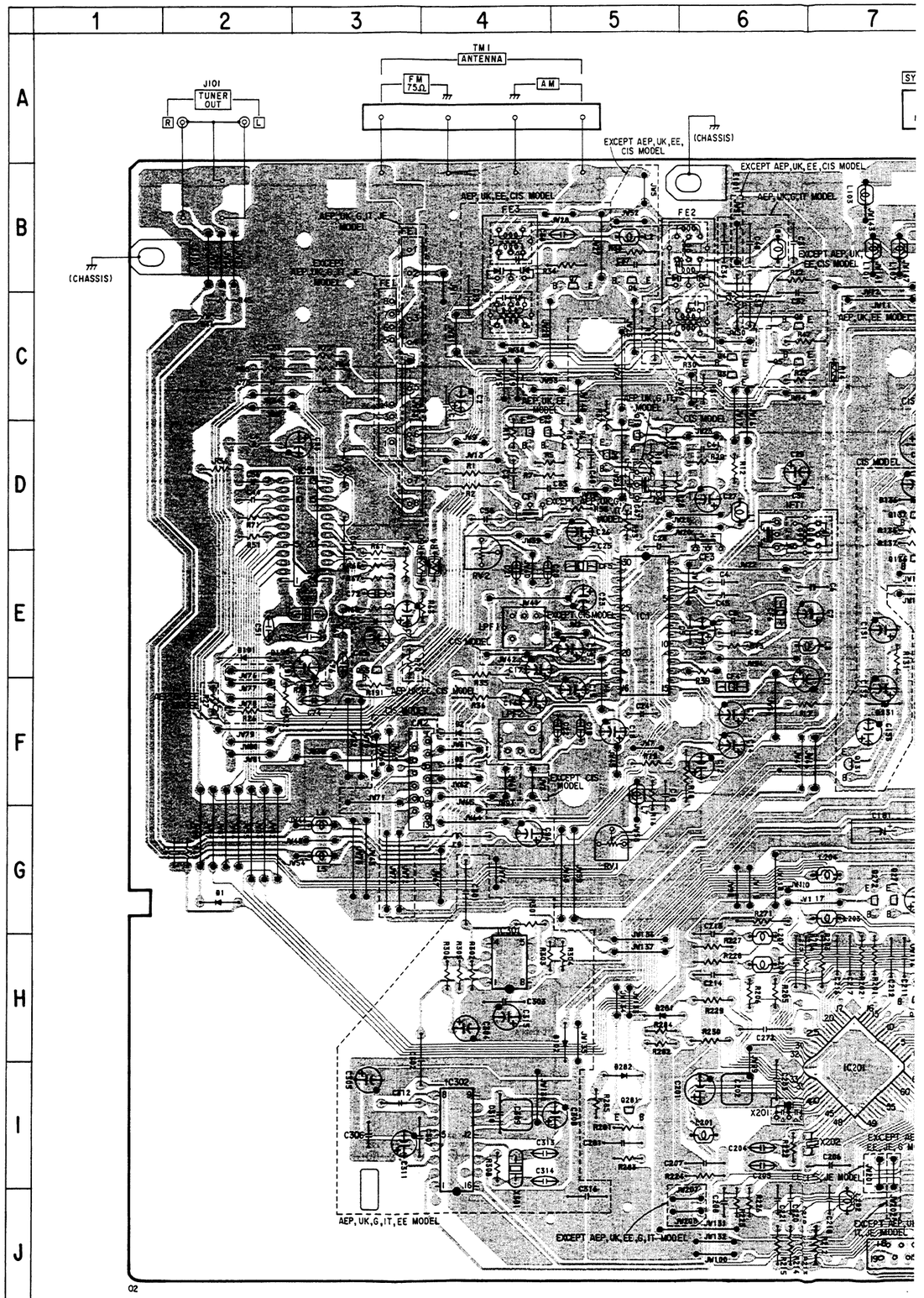
• SEMICONDUCTOR LOCATION

Ref. No.	Location	Ref. No.	Location
D1	G-1	IC171	G-8
D2	F-4	IC201	I-7
D3	F-4	IC301	H-4
D101	E-2	IC302	I-4
D102	H-5	IC601	H-15
D103	I-8	IC1701	C-13
D104	G-8	IC1703	D-13
D105	G-8		
D111	B-8		
D112	B-8	Q1	D-4
		Q2	D-4
D113	B-10	Q3	C-6
D121	B-10	Q4	C-6
D122	B-10	Q5	C-6
D123	B-10		
D124	B-10	Q6	B-5
		Q7	B-5
D125	B-9	Q8	C-6
D126	C-10	Q9	D-5
D127	C-10	Q10	D-5
D131	F-7		
D136	D-7	Q55	E-3
		Q121	B-10
D141	B-9	Q122	C-9
D142	B-8	Q123	B-9
D143	D-8	Q131	F-7
D161	F-8		
D191	E-3	Q136	E-7
		Q137	D-7
D271	G-7	Q141	D-8
D281	H-5	Q201	H-7
D282	I-5	Q271	G-7
D601	I-18		
D602	J-19	Q272	G-7
		Q281	I-5
D603	H-11	Q601	J-12
D604	H-11	Q602	J-12
D605	H-10	Q1701	C-14
D1701	D-12		
D1703	E-13	Q1702	D-12
		Q1704	E-13
D1704	D-14		
D1705	E-13		
IC1	E-5		
IC51	D-3		
IC111	C-11		

Note:

- O— : parts extracted from the component side.
- ▒▒▒ : Pattern on the side which is seen.
- Abbreviation
  - EE : East European
  - JE : Tourist
  - IT : Italian
  - G : German
  - AUS : Australian
  - EA : Saudi Arabia
  - MX : Mexican
  - MY : Malaysia
  - SP : Singapore
  - HK : Hong Kong

4-2. PRINTED WIRING BOARDS



【MAIN BOARD】

CN101
SYSTEM CONTROL
2 4 6
1 3 5 7

(CHASSIS)

EXCEPT AEP,UK,EE,CIS MODEL

AEP,UK,G,IT MODEL

FE2

CIS MODEL

EXCEPT AEP,UK,EE,G,IT MODEL

EXCEPT CIS MODEL

CN2
1 50

I-654-877-

【POLAR BOARD】

CIS MODEL

I-654-879-

【PANEL BOARD】

S607 TIMER SET
S614 CLOCK SET
S613 CHARACTER

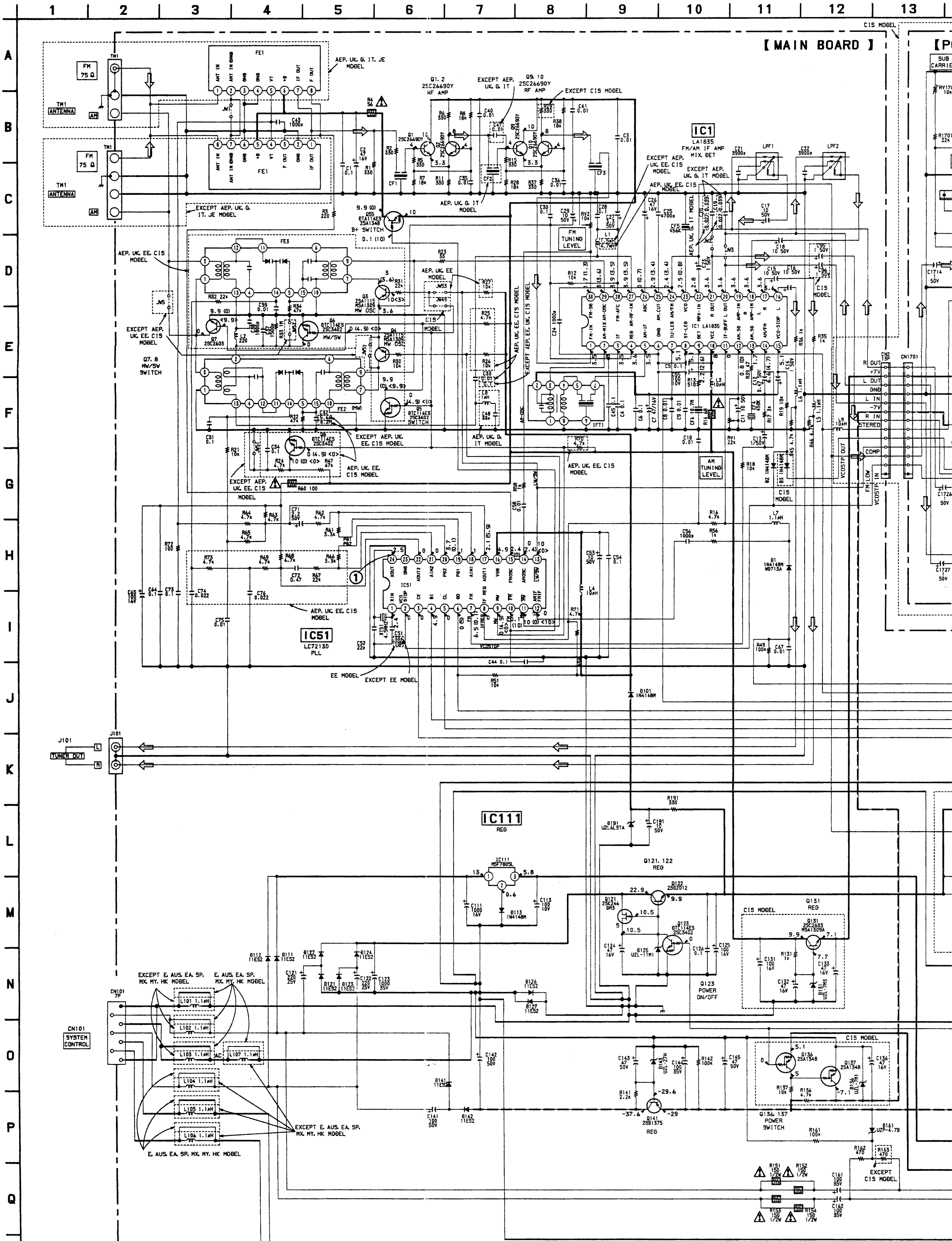
AEP, UK, G, IT, EE MODEL
S612 STEREO/MONO
S611 TUNING MODE
S610 MEMORY

AUS, E, EA, MY, MX, SP, HK, JE, CIS MODEL
TUNING MODE
S612 MANUAL
S611 AUTO
S610 PRESET

S602 STEREO/MONO
S608 ENTER/NEXT
D604 ENTER/NEXT
D602 MULTI CONTROLLER

I-654-878-

4-3. SCHEMATIC DIAGRAM



【POLAR BOARD】

【PANEL BOARD】

IC1701 MPX

IC1703 POLAR/PILOT SWITCH

IC61 LED DRIVE

IC601 M66004M6FP

FL601 FLUPRESCENT INDICATOR TUBE

IC201 μPD78013GC SYSTEM CONTROL

IC301 FILTER

IC302 SAA6579 RDS

IC171 RESET

Q601, 602 LED DRIVE

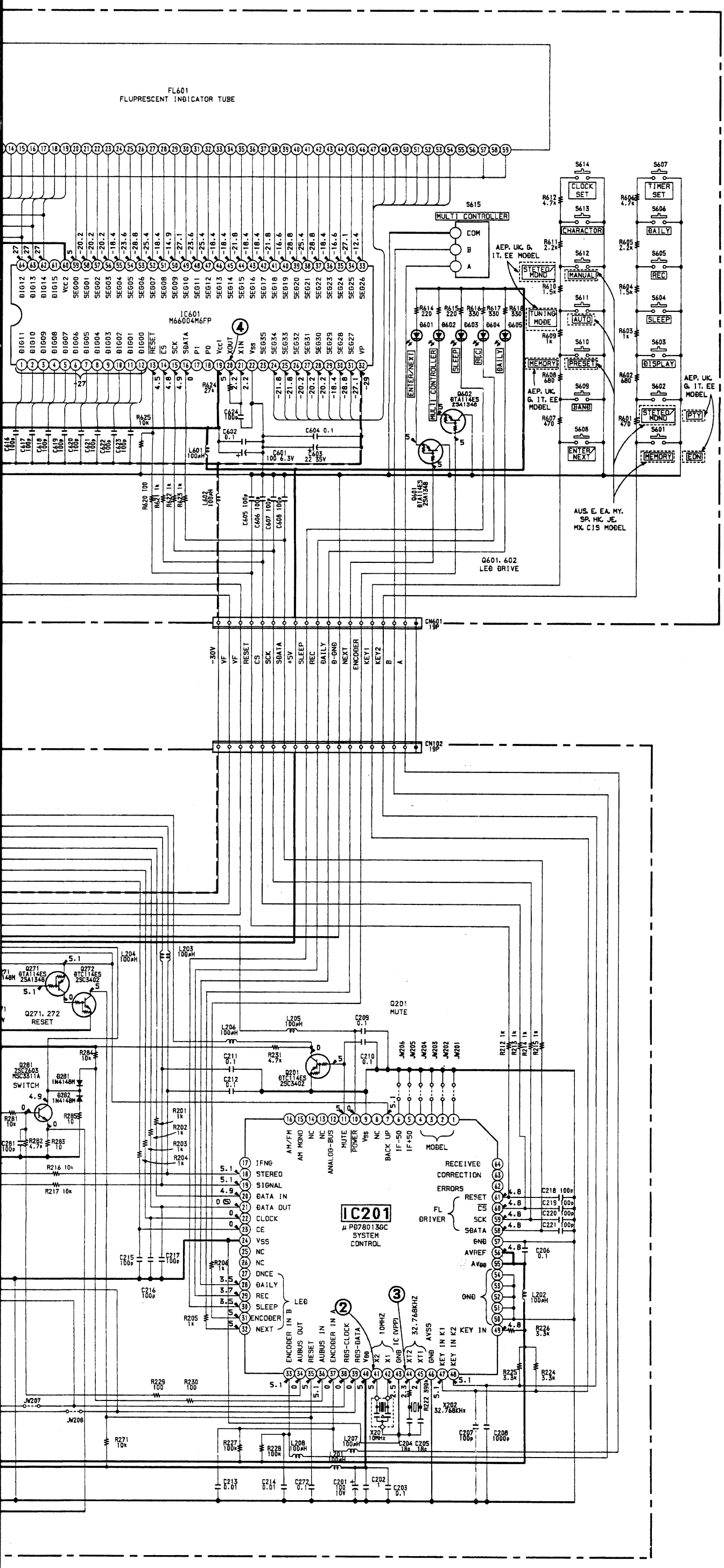
Q201 MUTE

Q271, 272 RESET

Q281 SWITCH

AEP, UK, G, IT, EE MODEL

AUS, E, EA, MY, SP, HK, JE, MX, CIS MODEL



• WAVEFORMS

① 5.3Vp-p, 220nsec
IC51 (24)

② 5.3Vp-p, 102nsec
IC201 (41)

③ 5.3Vp-p, 30.5 μsec
IC201 (44)

④ 5.3Vp-p, 2 μsec
IC601 (20)

Note :

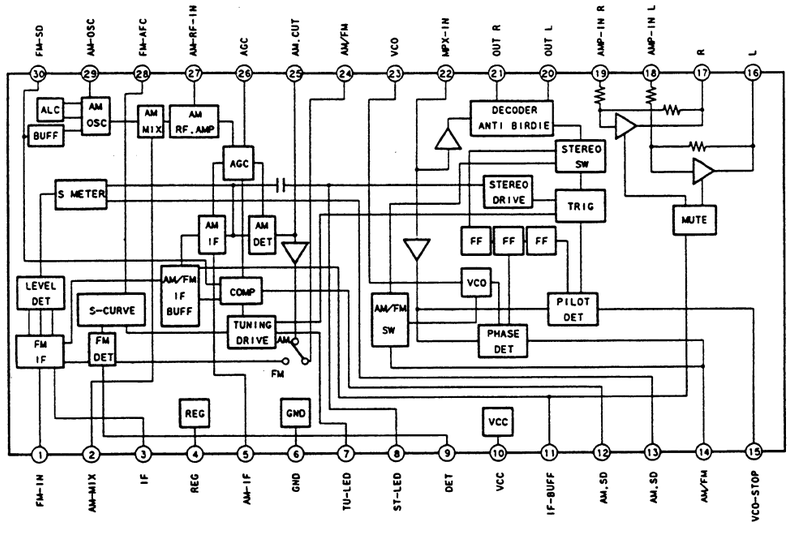
- All capacitors are in μ F unless otherwise noted. pF: μ μ F 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- △ : internal component.
- : nonflammable resistor.

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

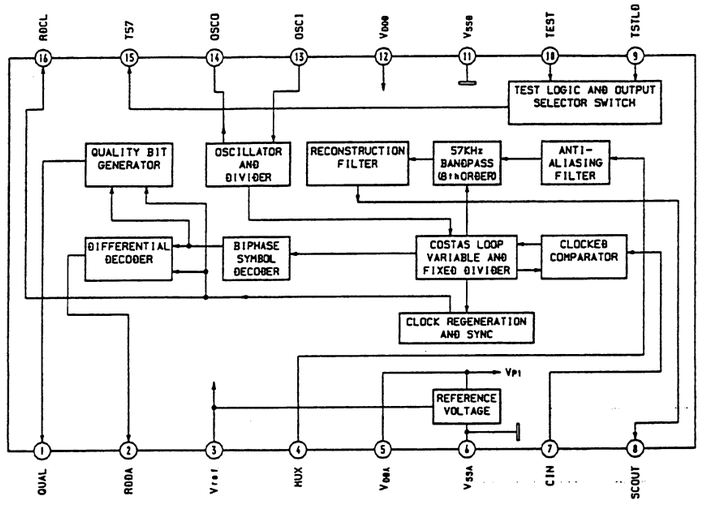
- : B+ Line
- : B − Line
- : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
  ( ) : AM
- Voltages are taken with a VOM (Input impedance 10M Ω). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : FM
- Abbreviation
  EE : East European
  JE : Tourist
  IT : Italian
  G : German
  AUS : Australian
  EA : Saudi Arabia
  MX : Mexican
  MY : Malaysia
  SP : Singapore
  HK : Hong Kong

• IC BLOCK DIAGRAMS

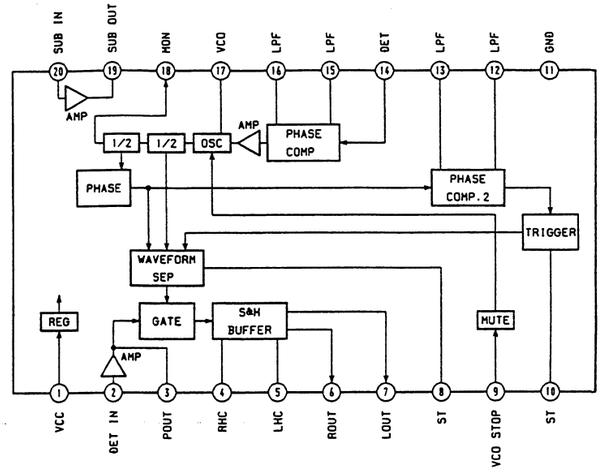
IC1 LA1835



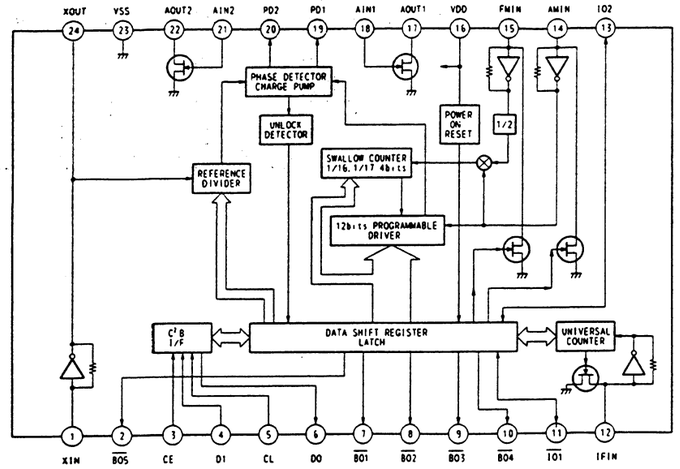
IC302 SAA6579



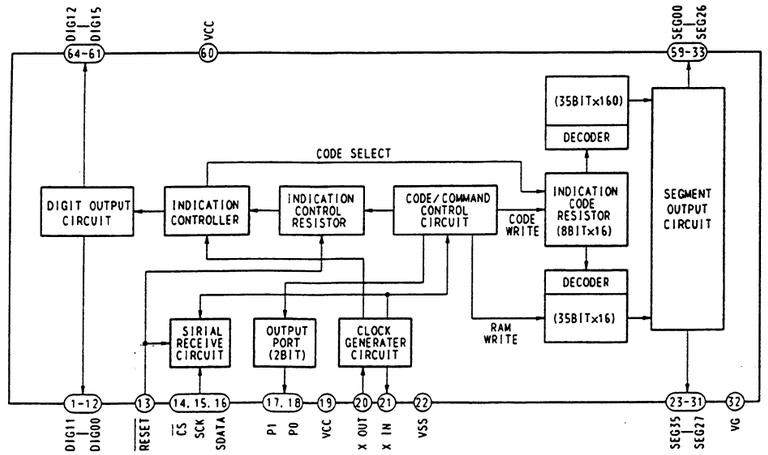
IC1701 IR3R42



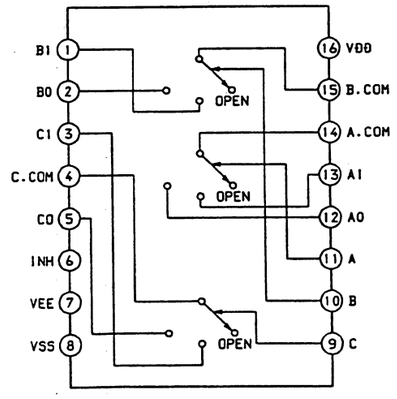
IC51 LC72130



IC601 M66004M6FP

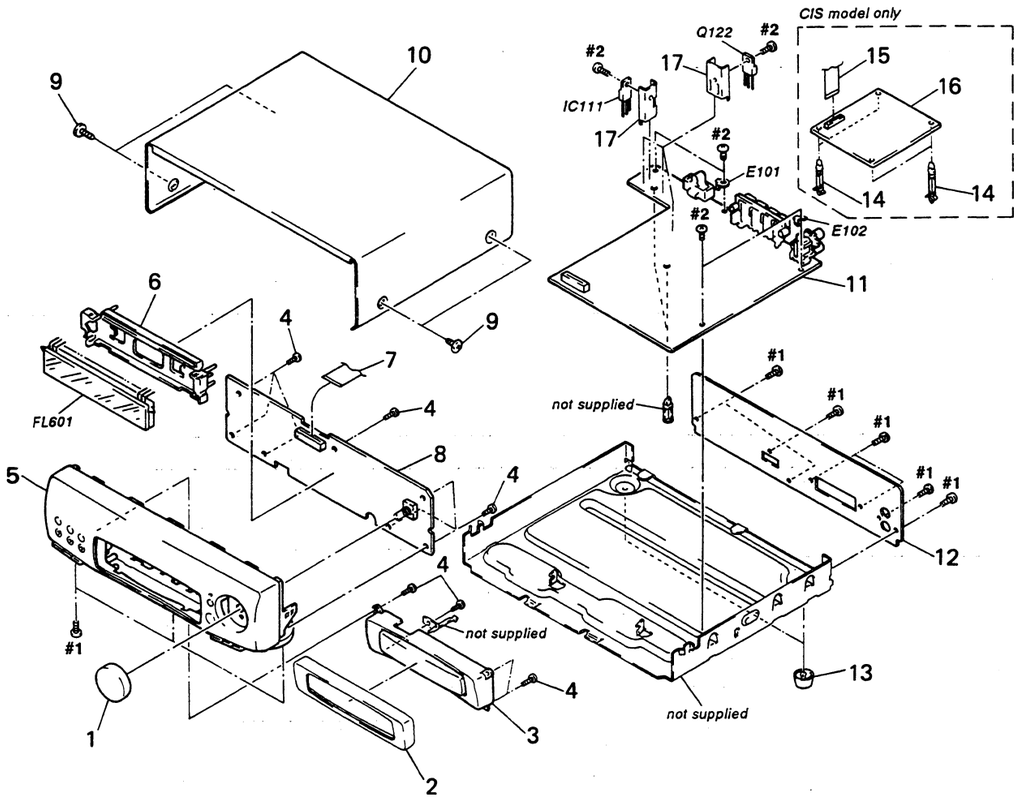


IC1703 μPD4053BC



SECTION 5
EXPLODED VIEWS

NOTE :
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " * "are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation
  EE : East European
  JE : Tourist
  IT : Italian
  G : German
  AUS : Australian
  EA : Saudi Arabia
  MX : Mexican
  MY : Malaysia
  SP : Singapore
  HK : Hong Kong



Ref. No.	Part No.	Description	Remark
1	4-970-782-11	KNOB (JOG)	
2	4-970-932-01	PLATE (ST/CD), ORNAMENTAL	
3	4-970-785-01	WINDOW (FL)	
4	4-951-620-01	SCREW (2.6×8), +BVTP	
5	X-4945-419-1	PANEL ASSY, FRONT (AEP, UK, G, IT, EE)	
5	X-4945-429-1	PANEL ASSY, FRONT (E, AUS, EA, MX, MY, SP, HK, JE, CIS)	
* 6	4-970-787-11	HOLDER (FL)	
7	1-765-242-31	WIRE (FLAT TYPE) (19 CORE)	
* 8	A-4377-038-A	PANEL BOARD, COMPLETE	
9	3-363-099-01	SCREW (CASE 3 TP2)	
10	4-970-927-21	CASE	
* 11	A-4377-031-A	MAIN BOARD, COMPLETE (G)	
* 11	A-4377-032-A	MAIN BOARD, COMPLETE (IT)	
* 11	A-4377-033-A	MAIN BOARD, COMPLETE (AEP, UK)	
* 11	A-4377-034-A	MAIN BOARD, COMPLETE (EE)	
* 11	A-4377-035-A	MAIN BOARD, COMPLETE (CIS)	
* 11	A-4377-036-A	MAIN BOARD, COMPLETE (E, AUS, EA, MX, MY, SP, HK)	
* 11	A-4377-844-A	MAIN BOARD, COMPLETE (JE)	
* 12	4-970-786-11	PANEL, BACK (AEP, UK, G, IT, EE, CIS)	
* 12	4-970-786-21	PANEL, BACK (E, AUS, EA, MX, MY, SP, HK, JE)	
13	4-965-822-01	FOOT	
* 14	4-924-098-91	HOLDER, PC BOARD (CIS)	
15	1-751-688-11	WIRE (FLAT TYPE) (13 CORE) (CIS)	
16	A-4369-349-A	POLAR BOARD, COMPLETE (CIS)	
* 17	3-309-144-21	HEAT SINK	
E101	1-537-770-11	TERMINAL BOARD, GROUND	
E102	1-537-770-11	TERMINAL BOARD, GROUND	
FL601	1-517-368-11	INDICATOR TUBE, FLUORESCENT	

SECTION 6
ELECTRICAL PARTS LIST

MAIN

NOTE :
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL : Metal-film resistor
  METAL OXIDE : Metal oxide-film resistor
  F : nonflammable
- Items marked " * "are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : μ , for example :
  uA.... : μ A.... , uPA.... : μ PA....
  uPB.... : μ PB.... , uPC.... : μ PC....
  uPD.... : μ PD....
- CAPACITORS
  uF : μ F
- COILS
  uH : μ H

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board.

- Abbreviation
  EE : East European
  JE : Tourist
  IT : Italian
  G : German
  AUS : Australian
  EA : Saudi Arabia
  MX : Mexican
  MY : Malaysia
  SP : Singapore
  HK : Hong Kong

Ref. No.	Part No.	Description			Remark
*	A-4377-031-A	MAIN BOARD, COMPLETE (G)			
*	A-4377-032-A	MAIN BOARD, COMPLETE (IT)			
*	A-4377-033-A	MAIN BOARD, COMPLETE (AEP, UK)			
*	A-4377-034-A	MAIN BOARD, COMPLETE (EE)			
*	A-4377-035-A	MAIN BOARD, COMPLETE (CIS)			
*	A-4377-036-A	MAIN BOARD, COMPLETE (E, AUS, EA, MX, MY, SP, HK)			
*	A-4377-844-A	MAIN BOARD, COMPLETE (JE)			
		**********			
		< CAPACITOR >			
C1	1-164-159-11	CERAMIC	0.1uF	50V	
C2	1-126-967-11	ELECT	47uF 20%	16V	
C3	1-162-306-11	CERAMIC	0.01uF 30%	16V	
C4	1-164-159-11	CERAMIC	0.1uF	50V	
C5	1-164-159-11	CERAMIC	0.1uF	50V	
C6	1-164-159-11	CERAMIC	0.1uF	50V	
C7	1-126-967-11	ELECT	47uF 20%	16V	
C8	1-162-306-11	CERAMIC	0.01uF 30%	16V	
C9	1-162-306-11	CERAMIC	0.01uF 30%	16V	
C10	1-162-306-11	CERAMIC	0.01uF 30%	16V	
C11	1-126-964-11	ELECT	10uF 20%	50V	
C12	1-124-902-00	ELECT	0.47uF 20%	50V	
C13	1-124-903-11	ELECT	1uF 20%	50V	
C14	1-124-903-11	ELECT	1uF 20%	50V	
C15	1-126-964-11	ELECT	10uF 20%	50V	
C16	1-126-964-11	ELECT	10uF 20%	50V	
C17	1-126-964-11	ELECT	10uF 20%	50V	
C18	1-126-964-11	ELECT	10uF 20%	50V	
C19	1-136-160-00	FILM	0.039uF 5%	50V (AEP, UK, G, IT)	
C19	1-136-158-00	FILM	0.027uF 5%	50V (E, AUS, EA, MX, MY, SP, HK, EE, JE, CIS)	
C20	1-136-160-00	FILM	0.039uF 5%	50V (AEP, UK, G, IT)	
C20	1-136-158-00	FILM	0.027uF 5%	50V (E, AUS, EA, MX, MY, SP, HK, EE, JE, CIS)	
C21	1-137-436-11	FILM	0.0039uF 5%	50V	
C22	1-137-436-11	FILM	0.0039uF 5%	50V	
C23	1-124-903-11	ELECT	1uF 20%	50V	
C24	1-162-294-31	CERAMIC	0.001uF 10%	50V	
C25	1-162-600-11	CERAMIC	0.0047uF 30%	16V	
C26	1-126-967-11	ELECT	47uF 20%	16V	
C27	1-126-111-11	ELECT	3.3uF 20%	50V	
C28	1-164-159-11	CERAMIC	0.1uF	50V	
C29	1-126-964-11	ELECT	10uF 20%	50V	
C30	1-164-159-11	CERAMIC	0.1uF	50V	
C31	1-164-159-11	CERAMIC	0.1uF	50V	
C32	1-162-196-31	CERAMIC	5.6PF 10%	50V (AEP, UK, EE, CIS)	
C32	1-162-198-31	CERAMIC	8.2PF 10%	50V (G, IT, E, AUS, EA, MX, MY, SP, HK, JE)	
C33	1-162-306-11	CERAMIC	0.01uF 30%	16V (AEP, UK, EE, CIS)	
C33	1-164-159-11	CERAMIC	0.1uF	50V (G, IT, E, AUS, EA, MX, MY, SP, HK, JE)	
C34	1-164-159-11	CERAMIC	0.1uF	50V (AEP, UK, EE, CIS)	
C35	1-162-306-11	CERAMIC	0.01uF 30%	16V	
C36	1-162-306-11	CERAMIC	0.01uF 30%	16V	
C37	1-162-301-11	CERAMIC	0.0015uF 30%	16V (AEP, UK, EE, CIS)	
C38	1-102-120-00	CERAMIC	0.0018uF 10%	50V (AEP, UK, EE, CIS)	
C39	1-162-306-11	CERAMIC	0.01uF 30%	16V (AEP, UK, EE, CIS)	
C40	1-162-306-11	CERAMIC	0.01uF 30%	16V	
C41	1-162-306-11	CERAMIC	0.01uF 30%	16V	
C43	1-162-294-31	CERAMIC	0.001uF 10%	50V	
C44	1-164-159-11	CERAMIC	0.1uF	50V	
C45	1-164-159-11	CERAMIC	0.1uF	50V	

MAIN

Ref.No.	Part No.	Description			Remark
C47	1-164-095-11	CERAMIC	0.01uF	10%	16V (EXCEPT AEP, UK, G, IT)
C48	1-162-211-31	CERAMIC	33PF	5%	50V (AEP, UK, G, IT)
C51	1-164-031-11	CERAMIC	33PF	5%	50V (EXCEPT EE)
C51	1-164-019-11	CERAMIC	10PF	0.5PF	50V (EE)
C52	1-164-027-11	CERAMIC	22PF	5%	50V
C53	1-126-964-11	ELECT	10uF	20%	50V
C54	1-164-159-11	CERAMIC	0.1uF		50V
C55	1-126-933-11	ELECT	100uF	20%	10V
C56	1-162-294-31	CERAMIC	0.001uF	10%	50V
C58	1-162-306-11	CERAMIC	0.01uF	30%	16V
C64	1-164-159-11	CERAMIC	0.1uF		50V
C65	1-126-933-11	ELECT	100uF	20%	16V
C67	1-162-306-11	CERAMIC	0.01uF	30%	16V
C71	1-124-925-11	ELECT	2.2uF	20%	100V
C72	1-136-173-00	FILM	0.47uF	5%	50V (AEP, UK, EE, CIS)
C73	1-164-159-11	CERAMIC	0.1uF		50V
C74	1-164-097-11	CERAMIC	0.022uF		50V (AEP, UK, EE, CIS)
C75	1-162-306-11	CERAMIC	0.01uF	30%	16V
C76	1-164-097-11	CERAMIC	0.022uF		50V (AEP, UK, EE, CIS)
C95	1-124-903-11	ELECT	1uF	20%	50V (CIS)
C96	1-124-903-11	ELECT	1uF	20%	50V (CIS)
C111	1-126-952-11	ELECT	1000uF	20%	16V
C113	1-126-933-11	ELECT	100uF	20%	10V
C121	1-104-666-11	ELECT	220uF	20%	25V
C122	1-104-666-11	ELECT	220uF	20%	25V
C123	1-126-952-11	ELECT	1000uF	20%	35V
C124	1-126-967-11	ELECT	47uF	20%	16V
C125	1-126-933-11	ELECT	100uF	20%	16V
C126	1-136-165-00	FILM	0.1uF	5%	50V
C131	1-126-933-11	ELECT	100uF	20%	16V (CIS)
C132	1-126-967-11	ELECT	47uF	20%	16V (CIS)
C133	1-126-967-11	ELECT	47uF	20%	16V (CIS)
C136	1-126-803-11	ELECT	47uF	20%	10V (CIS)
C141	1-124-122-11	ELECT	100uF	20%	50V
C142	1-124-122-11	ELECT	100uF	20%	50V
C143	1-126-967-11	ELECT	47uF	20%	50V
C144	1-126-948-11	ELECT	100uF	20%	35V
C145	1-126-967-11	ELECT	47uF	20%	50V
C161	1-126-948-11	ELECT	100uF	20%	35V
C162	1-126-948-11	ELECT	100uF	20%	35V
C171	1-126-964-11	ELECT	10uF	20%	50V
C181	1-125-705-11	CAP, DOUBLE LAYERS			0.22F
C191	1-126-964-11	ELECT	10uF	20%	50V
C201	1-126-933-11	ELECT	100uF	20%	10V

Ref.No.	Part No.	Description			Remark
C202	1-136-177-00	FILM	1uF	5%	50V
C203	1-164-159-11	CERAMIC	0.1uF		50V
C204	1-164-025-51	CERAMIC	18PF	5%	50V
C205	1-164-025-51	CERAMIC	18PF	5%	50V
C206	1-164-159-11	CERAMIC	0.1uF		50V
C207	1-162-282-31	CERAMIC	100PF	10%	50V
C208	1-162-294-31	CERAMIC	0.001uF	10%	50V
C209	1-164-159-11	CERAMIC	0.1uF		50V
C210	1-164-159-11	CERAMIC	0.1uF		50V
C211	1-164-159-11	CERAMIC	0.1uF		50V
C212	1-164-159-11	CERAMIC	0.1uF		50V
C213	1-162-306-11	CERAMIC	0.01uF	30%	16V
C214	1-162-306-11	CERAMIC	0.01uF	30%	16V
C215	1-162-282-31	CERAMIC	100PF	10%	50V
C216	1-162-282-31	CERAMIC	100PF	10%	50V
C217	1-162-282-31	CERAMIC	100PF	10%	50V
C218	1-162-282-31	CERAMIC	100PF	10%	50V
C219	1-162-282-31	CERAMIC	100PF	10%	50V
C220	1-162-282-31	CERAMIC	100PF	10%	50V
C221	1-162-282-31	CERAMIC	100PF	10%	50V
C271	1-124-903-11	ELECT	1uF	20%	50V
C272	1-164-159-11	CERAMIC	0.1uF		50V
C281	1-162-282-31	CERAMIC	100PF	10%	50V
C301	1-164-159-11	CERAMIC	0.1uF		50V (AEP, UK, G, IT, EE)
C302	1-162-288-31	CERAMIC	330PF	10%	50V (AEP, UK, G, IT, EE)
C303	1-164-159-11	CERAMIC	0.1uF		50V (AEP, UK, G, IT, EE)
C304	1-126-964-11	ELECT	10uF	20%	50V (AEP, UK, G, IT, EE)
C305	1-126-967-11	ELECT	47uF	20%	16V (AEP, UK, G, IT, EE)
C306	1-136-177-00	FILM	1uF	5%	50V (AEP, UK, G, IT, EE)
C307	1-164-159-11	CERAMIC	0.1uF		50V (AEP, UK, G, IT, EE)
C308	1-126-967-11	ELECT	47uF	20%	16V (AEP, UK, G, IT, EE)
C309	1-136-177-00	FILM	1uF	5%	50V (AEP, UK, G, IT, EE)
C310	1-164-159-11	CERAMIC	0.1uF		50V (AEP, UK, G, IT, EE)
C311	1-124-925-11	ELECT	2.2uF	20%	100V (AEP, UK, G, IT, EE)
C312	1-162-291-31	CERAMIC	560PF	10%	50V (AEP, UK, G, IT, EE)
C313	1-101-884-00	CERAMIC	56PF	5%	50V (AEP, UK, G, IT, EE)
C314	1-101-884-00	CERAMIC	56PF	5%	50V (AEP, UK, G, IT, EE)

MAIN

Ref. No.	Part No.	Description	Remark
C315	1-126-933-11	ELECT 100uF 20% 16V	(AEP, UK, G, IT, EE)
C316	1-164-159-11	CERAMIC 0.1uF 50V	(AEP, UK, G, IT, EE)
C621	1-162-282-31	CERAMIC 100PF 10% 50V	
		< FILTER >	
CF1	1-579-374-71	FILTER, CERAMIC (AEP, UK, G, IT)	
CF1	1-567-389-11	FILTER, CERAMIC	(E, AUS, EA, MX, MY, SP, HK, EE, JE, CIS)
CF2	1-760-393-11	FILTER, CERAMIC (AEP, UK, G, IT)	
CF3	1-760-393-11	FILTER, CERAMIC (AEP, UK, G, IT)	
CF3	1-567-389-11	FILTER, CERAMIC	(E, AUS, EA, MX, MY, SP, HK, EE, JE, CIS)
CF4	1-527-981-00	FILTER, CERAMIC	
CF5	1-577-075-11	OSCILLATOR, CERAMIC	
CF6	1-760-220-21	FILTER, CERAMIC	
		< CONNECTOR >	
CN101	1-770-158-41	SOCKET, CONNECTOR 7P	
CN102	1-568-802-11	SOCKET, CONNECTOR 19P	
		< DIODE >	
D1	8-719-987-63	DIODE 1N4148M (AEP:Made in Japan, E, AUS, EA, MX, MY, SP, HK, EE, JE, CIS)	
D1	8-719-815-85	DIODE 1S1585 (AEP:Made in France, UK, IT, G)	
D2	8-719-987-63	DIODE 1N4148M (AEP:Made in Japan, E, AUS, EA, MX, MY, SP, HK, EE, JE, CIS)	
D2	8-719-815-85	DIODE 1S1585 (AEP:Made in France, UK, IT, G)	
D3	8-719-987-63	DIODE 1N4148M (CIS)	
D101	8-719-987-63	DIODE 1N4148M (AEP:Made in Japan, E, AUS, EA, MX, MY, SP, HK, EE, JE, CIS)	
D101	8-719-815-85	DIODE 1S1585 (AEP:Made in France, UK, IT, G)	
D102	8-719-987-63	DIODE 1N4148M (AEP:Made in Japan, E, AUS, EA, MX, MY, SP, HK, EE, JE, CIS)	
D102	8-719-815-85	DIODE 1S1585 (AEP:Made in France, UK, IT, G)	
D103	8-719-987-63	DIODE 1N4148M (AEP:Made in Japan, E, AUS, EA, MX, MY, SP, HK, EE, JE, CIS)	
D103	8-719-815-85	DIODE 1S1585 (AEP:Made in France, UK, IT, G)	
D104	8-719-987-63	DIODE 1N4148M (AEP:Made in Japan, E, AUS, EA, MX, MY, SP, HK, EE, JE, CIS)	
D104	8-719-815-85	DIODE 1S1585 (AEP:Made in France, UK, IT, G)	
D105	8-719-987-63	DIODE 1N4148M (AEP:Made in Japan, E, AUS, EA, MX, MY, SP, HK, EE, JE, CIS)	
D105	8-719-815-85	DIODE 1S1585 (AEP:Made in France, UK, IT, G)	
D111	8-719-200-82	DIODE 11ES2	
D112	8-719-200-82	DIODE 11ES2	
D113	8-719-987-63	DIODE 1N4148M (AEP:Made in Japan, E, AUS, EA, MX, MY, SP, HK, EE, JE, CIS	
D113	8-719-815-85	DIODE 1S1585 (AEP:Made in France, UK, IT, G)	
D121	8-719-200-82	DIODE 11ES2	
D122	8-719-200-82	DIODE 11ES2	
D123	8-719-200-82	DIODE 11ES2	
D124	8-719-200-82	DIODE 11ES2	
D125	8-719-001-43	DIODE UZL-11M1-TA	
D126	8-719-200-82	DIODE 11ES2	
D127	8-719-200-82	DIODE 11ES2	
D131	8-719-933-48	DIODE HZS7B3L (CIS)	
D136	8-719-000-85	DIODE UZL-7M1-TA (CIS)	
D141	8-719-200-82	DIODE 11ES2	
D142	8-719-200-82	DIODE 11ES2	
D143	8-719-002-48	DIODE UZL-27H	
D161	8-719-014-48	DIODE UZP-4.7B	
D191	8-719-000-54	DIODE UZL-6L3	
D271	8-719-987-63	DIODE 1N4148M (AEP:Made in Japan, E, AUS, EA, MX, MY, SP, HK, EE, JE, CIS)	
D271	8-719-815-85	DIODE 1S1585 (AEP:Made in France, UK, IT, G)	
D281	8-719-987-63	DIODE 1N4148M (AEP:Made in Japan, E, AUS, EA, MX, MY, SP, HK, EE, JE, CIS)	
D281	8-719-815-85	DIODE 1S1585 (AEP:Made in France, UK, IT, G)	
D282	8-719-987-63	DIODE 1N4148M (AEP:Made in Japan, E, AUS, EA, MX, MY, SP, HK, EE, JE, CIS)	
D282	8-719-815-85	DIODE 1S1585 (AEP:Made in France, UK, IT, G)	
		< FRONT END >	
FE1	1-693-253-21	FRONT END (4 GANG) (AEP, UK, G, IT)	
FE1	1-693-090-51	FRONT END (FM) (2 GANG)	(E, AUS, EA, MX, MY, SP, HK)
FE1	1-693-244-21	FRONT END (3 GANG) (EE, CIS)	
FE1	1-693-251-11	FRONT END (JE)	
FE2	1-239-261-12	ENCAPSULATED COMPONENT (AEP, UK, EE, CIS)	
FE2	1-239-634-11	ENCAPSULATED COMPONENT, AM. RF	(G, IT, E, AUS, EA, MX, MY, SP, HK, JE)
FE3	1-236-463-11	ENCAPSULATED COMPONENT (AEP, UK, EE, CIS)	
		< IC >	
IC1	8-759-176-03	IC LA1835	
IC51	8-759-288-54	IC LC72130	
IC111	8-759-231-53	IC TA7805S	
IC171	8-759-165-80	IC PST600C-T	
IC201	8-759-338-81	IC uPD78013GC-652-AB8	

MAIN

Ref. No.	Part No.	Description	Remark
IC301	8-759-634-51	IC M5218AP (AEP, UK, G, IT, EE)	
IC302	8-759-169-99	IC SAA6579 (AEP, UK, G, IT, EE)	
IC601	8-759-261-63	IC M66004M6FP	
		< IFT >	
IFT1	1-409-636-11	TRANSFORMER, IF (CERAMIC FILTER)	
		< JACK >	
J101	1-770-272-11	JACK, PIN 2P (TUNER OUT)	
		< COIL >	
L1	1-407-500-00	INDUCTOR 4.7mH (AEP, UK, EE, CIS)	
L1	1-410-688-31	INDUCTOR 1.5mH (G, IT, E, AUS, EA, MX, MY, SP, HK, JE)	
L2	1-408-425-00	INDUCTOR 220uH (AEP, UK, EE, CIS)	
L3	1-410-470-11	INDUCTOR 10uH	
L4	1-410-509-11	INDUCTOR 10uH	
L5	1-410-397-21	FERRITE BEAD INDUCTOR	
L6	1-410-397-21	FERRITE BEAD INDUCTOR	
L7	1-410-397-21	FERRITE BEAD INDUCTOR	
L8	1-408-397-00	INDUCTOR 1uH (AEP, UK, G, IT)	
L9	1-410-509-11	INDUCTOR 10uH (CIS)	
L101-107	1-410-397-21	FERRITE BEAD INDUCTOR (AEP, UK, G, IT, EE, CIS, JE)	
L201-208	1-408-421-00	INDUCTOR 100uH	
		< FILTER >	
LPF1	1-239-597-11	FILTER, LOW PASS	
LPF2	1-239-597-11	FILTER, LOW PASS	
		< TRANSISTOR >	
Q1	8-729-230-99	TRANSISTOR 2SC2669-OY	
Q2	8-729-230-99	TRANSISTOR 2SC2669-OY	
Q3	8-729-119-76	TRANSISTOR 2SA1175-HFE (AEP, UK, EE, CIS)	
Q4	8-729-119-76	TRANSISTOR 2SA1175-HFE (AEP, UK, EE, CIS)	
Q5	8-729-900-80	TRANSISTOR DTC114ES (AEP, UK, EE, CIS)	
Q6	8-729-900-80	TRANSISTOR DTC114ES (AEP, UK, EE, CIS)	
Q7	8-729-620-05	TRANSISTOR 2SC2603-EF (AEP, UK, EE, CIS)	
Q8	8-729-900-80	TRANSISTOR DTC114ES (AEP, UK, EE, CIS)	
Q9	8-729-230-99	TRANSISTOR 2SC2669-OY	
Q10	8-729-230-99	TRANSISTOR 2SC2669-OY	
Q55	8-729-422-57	TRANSISTOR UN4111 (AEP:Made in Japan, E, AUS, EA, MX, MY, SP, HK, EE, JE, CIS)	
Q55	8-729-900-61	TRANSISTOR DTA114ES (AEP:Made in France, G, IT)	
Q121	8-729-202-67	TRANSISTOR 2SK246-GR3	
Q122	8-729-209-15	TRANSISTOR 2SD2012	

Ref. No.	Part No.	Description	Remark
Q123	8-729-900-80	TRANSISTOR DTC114ES	
Q131	8-729-620-05	TRANSISTOR 2SC2603-EF (CIS)	
Q136	8-729-900-61	TRANSISTOR DTA114ES (CIS)	
Q137	8-729-900-61	TRANSISTOR DTA114ES (CIS)	
Q141	8-729-141-83	TRANSISTOR 2SB1094-LK	
Q201	8-729-900-80	TRANSISTOR DTC114ES	
Q271	8-729-422-57	TRANSISTOR UN4111 (AEP:Made in Japan, AUS, EA, MX, MY, SP, HK, E, EE, JE, CIS)	
Q271	8-729-900-61	TRANSISTOR DTA114ES (AEP:Made in France, UK, G, IT)	
Q272	8-729-900-80	TRANSISTOR DTC114ES	
Q281	8-729-620-05	TRANSISTOR 2SC2603-EF	
		< RESISTOR >	
R1	1-249-411-11	CARBON 330 5% 1/4W	
R2	1-249-411-11	CARBON 330 5% 1/4W	
R3	1-249-409-11	CARBON 220 5% 1/4W	
⚠R4	1-249-402-11	CARBON 56 5% 1/4W	F
R5	1-249-411-11	CARBON 330 5% 1/4W	
R6	1-249-411-11	CARBON 330 5% 1/4W	
R7	1-249-432-11	CARBON 18K 5% 1/4W	
R8	1-249-432-11	CARBON 18K 5% 1/4W	
R11	1-249-411-11	CARBON 330 5% 1/4W	
R12	1-249-429-11	CARBON 10K 5% 1/4W	
R13	1-249-442-11	CARBON 510 5% 1/4W	
⚠R14	1-249-403-11	CARBON 68 5% 1/4W	F
R15	1-249-411-11	CARBON 330 5% 1/4W	
R16	1-249-425-11	CARBON 4.7K 5% 1/4W	
R17	1-247-842-11	CARBON 3K 5% 1/4W	
R18	1-249-429-11	CARBON 10K 5% 1/4W	
R19	1-249-429-11	CARBON 10K 5% 1/4W	
R21	1-249-429-11	CARBON 10K 5% 1/4W	
R22	1-249-437-11	CARBON 47K 5% 1/4W	
R23	1-249-399-11	CARBON 33 5% 1/4W	
R24	1-249-425-11	CARBON 4.7K 5% 1/4W (AEP, UK, EE, CIS)	
R25	1-249-425-11	CARBON 4.7K 5% 1/4W (AEP, UK, EE, CIS)	
R26	1-249-429-11	CARBON 10K 5% 1/4W (AEP, UK, EE, CIS)	
R27	1-249-429-11	CARBON 10K 5% 1/4W (AEP, UK, EE)	
R28	1-249-432-11	CARBON 18K 5% 1/4W	
R29	1-249-411-11	CARBON 330 5% 1/4W (AEP, UK, G, IT, E, AUS, EA, MX, MY, SP, HK, EE, JE)	
R30	1-249-421-11	CARBON 2.2K 5% 1/4W (AEP, UK, EE, CIS)	
R31	1-247-863-91	CARBON 22K 5% 1/4W (AEP, UK, EE, CIS)	
R32	1-247-863-91	CARBON 22K 5% 1/4W (AEP, UK, EE, CIS)	
R33	1-247-903-00	CARBON 1M 5% 1/4W (AEP, UK, EE, CIS)	
R34	1-249-437-11	CARBON 47K 5% 1/4W (AEP, UK, EE, CIS)	
R35	1-249-417-11	CARBON 1K 5% 1/4W	
R36	1-249-417-11	CARBON 1K 5% 1/4W	
R37	1-249-411-11	CARBON 330 5% 1/4W	
R38	1-249-432-11	CARBON 18K 5% 1/4W	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

MAIN PANEL

Ref. No.	Part No.	Description				Remark
R39	1-249-401-11	CARBON	47	5%	1/4W	
R45	1-249-425-11	CARBON	4.7K	5%	1/4W	
R46	1-249-425-11	CARBON	4.7K	5%	1/4W	
R47	1-249-437-11	CARBON	47K	5%	1/4W	(AEP, UK, EE, CIS)
R49	1-249-441-11	CARBON	100K	5%	1/4W	
R51	1-249-429-11	CARBON	10K	5%	1/4W	
R56	1-249-417-11	CARBON	1K	5%	1/4W	
R58	1-249-417-11	CARBON	1K	5%	1/4W	
⚠R60	1-249-405-11	CARBON	100	5%	1/4W	F
R61	1-249-423-11	CARBON	3.3K	5%	1/4W	
R62	1-249-425-11	CARBON	4.7K	5%	1/4W	
R63	1-249-425-11	CARBON	4.7K	5%	1/4W	
R64	1-249-425-11	CARBON	4.7K	5%	1/4W	
R65	1-249-425-11	CARBON	4.7K	5%	1/4W	
R66	1-249-423-11	CARBON	3.3K	5%	1/4W	(AEP, UK, EE, CIS)
R67	1-247-863-91	CARBON	22K	5%	1/4W	(AEP, UK, EE, CIS)
R68	1-249-425-11	CARBON	4.7K	5%	1/4W	(AEP, UK, EE, CIS)
R69	1-249-425-11	CARBON	4.7K	5%	1/4W	(AEP, UK, EE, CIS)
R70	1-249-425-11	CARBON	4.7K	5%	1/4W	(AEP, UK, EE, CIS)
R71	1-249-425-11	CARBON	4.7K	5%	1/4W	
R72	1-247-807-31	CARBON	100	5%	1/4W	
R73	1-249-425-11	CARBON	4.7K	5%	1/4W	(AEP, UK, EE, CIS)
R131	1-249-413-11	CARBON	470	5%	1/4W	(CIS)
R136	1-249-425-11	CARBON	4.7K	5%	1/4W	(CIS)
R137	1-249-429-11	CARBON	10K	5%	1/4W	(CIS)
R141	1-249-421-11	CARBON	2.2K	5%	1/4W	
R142	1-249-441-11	CARBON	100K	5%	1/4W	
⚠R151	1-247-741-11	CARBON	150	5%	1/2W	F
⚠R152	1-247-741-11	CARBON	150	5%	1/2W	F
⚠R153	1-247-741-11	CARBON	150	5%	1/2W	F
⚠R154	1-247-741-11	CARBON	150	5%	1/2W	F
R161	1-249-441-11	CARBON	100K	5%	1/4W	
R162	1-249-413-11	CARBON	470	5%	1/4W	
R163	1-249-413-11	CARBON	470	5%	1/4W	(AEP, UK, G, IT, E, AUS, EA, MX, MY, SP, HK, EE, JE)
R171	1-249-417-11	CARBON	1K	5%	1/4W	
R181	1-247-807-31	CARBON	100	5%	1/4W	
R191	1-249-411-11	CARBON	330	5%	1/4W	
R201	1-249-417-11	CARBON	1K	5%	1/4W	
R202	1-249-417-11	CARBON	1K	5%	1/4W	
R203	1-249-417-11	CARBON	1K	5%	1/4W	
R204	1-249-417-11	CARBON	1K	5%	1/4W	
R205	1-249-417-11	CARBON	1K	5%	1/4W	
R206	1-249-417-11	CARBON	1K	5%	1/4W	
R212	1-249-417-11	CARBON	1K	5%	1/4W	
R213	1-249-417-11	CARBON	1K	5%	1/4W	
R214	1-249-417-11	CARBON	1K	5%	1/4W	
R215	1-249-417-11	CARBON	1K	5%	1/4W	
R216	1-249-429-11	CARBON	10K	5%	1/4W	

Ref. No.	Part No.	Description				Remark
R217	1-249-429-11	CARBON	10K	5%	1/4W	
R222	1-247-893-11	CARBON	390K	5%	1/4W	
R224	1-249-423-11	CARBON	3.3K	5%	1/4W	
R225	1-249-423-11	CARBON	3.3K	5%	1/4W	
R226	1-249-423-11	CARBON	3.3K	5%	1/4W	
R227	1-249-441-11	CARBON	100K	5%	1/4W	
R228	1-249-441-11	CARBON	100K	5%	1/4W	
R229	1-247-807-31	CARBON	100	5%	1/4W	
R230	1-247-807-31	CARBON	100	5%	1/4W	
R231	1-249-425-11	CARBON	4.7K	5%	1/4W	
R271	1-249-429-11	CARBON	10K	5%	1/4W	
R281	1-249-429-11	CARBON	10K	5%	1/4W	
R282	1-249-425-11	CARBON	4.7K	5%	1/4W	
R283	1-249-393-11	CARBON	10	5%	1/4W	
R284	1-249-429-11	CARBON	10K	5%	1/4W	
R285	1-249-393-11	CARBON	10	5%	1/4W	
R301	1-249-441-11	CARBON	100K	5%	1/4W	(AEP, UK, G, IT, EE)
R302	1-249-441-11	CARBON	100K	5%	1/4W	(AEP, UK, G, IT, EE)
R303	1-249-441-11	CARBON	100K	5%	1/4W	(AEP, UK, G, IT, EE)
R304	1-249-441-11	CARBON	100K	5%	1/4W	(AEP, UK, G, IT, EE)
R305	1-249-429-11	CARBON	10K	5%	1/4W	(AEP, UK, G, IT, EE)
R306	1-249-426-11	CARBON	5.6K	5%	1/4W	(AEP, UK, G, IT, EE)
R308	1-249-421-11	CARBON	2.2K	5%	1/4W	(AEP, UK, G, IT, EE)

< VARIABLE RESISTOR >

RV1	1-238-601-11	RES, ADJ, CARBON 22K (FM TUNING LEVEL)
RV2	1-238-600-11	RES, ADJ, CARBON 10K (AM TUNING LEVEL)

< TERMINAL >

TM1	1-537-488-11	TERMINAL BOARD (ANT) (ANTENNA) (AEP, UK, G, IT, EE, CIS)
TM1	1-537-238-21	TERMINAL BOARD (ANTENNA) (E, AUS, EA, MX, MY, SP, HK, JE)

< VIBRATOR >

X201	1-579-175-11	VIBRATOR, CERAMIC (10MHz)
X202	1-567-098-41	VIBRATOR, CRYSTAL (32.768kHz)
X301	1-579-900-21	VIBRATOR, CRYSTAL (4.332MHz) (AEP, UK, G, IT, EE)
XT51	1-760-549-11	VIBRATOR, CRYSTAL (4.5MHz)

****

* A-4377-038-A PANEL BOARD, COMPLETE

****

< CAPACITOR >

C601	1-124-584-00	ELECT	100uF	20%	10V
C602	1-164-159-11	CERAMIC	0.1uF		50V
C603	1-124-248-00	ELECT	22uF	20%	35V
C604	1-164-159-11	CERAMIC	0.1uF		50V

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

PANEL

Ref. No.	Part No.	Description			Remark
C605	1-162-282-31	CERAMIC	100PF	10%	50V
C606	1-162-282-31	CERAMIC	100PF	10%	50V
C607	1-162-282-31	CERAMIC	100PF	10%	50V
C608	1-162-282-31	CERAMIC	100PF	10%	50V
C609	1-162-294-31	CERAMIC	0.001uF	10%	50V
C610	1-162-282-31	CERAMIC	100PF	10%	50V
C611	1-162-282-31	CERAMIC	100PF	10%	50V
C612	1-162-282-31	CERAMIC	100PF	10%	50V
C613	1-162-282-31	CERAMIC	100PF	10%	50V
C614	1-162-282-31	CERAMIC	100PF	10%	50V
C615	1-162-282-31	CERAMIC	100PF	10%	50V
C616	1-162-282-31	CERAMIC	100PF	10%	50V
C617	1-162-282-31	CERAMIC	100PF	10%	50V
C618	1-162-282-31	CERAMIC	100PF	10%	50V
C619	1-162-282-31	CERAMIC	100PF	10%	50V
C620	1-162-282-31	CERAMIC	100PF	10%	50V
C622	1-162-282-31	CERAMIC	100PF	10%	50V
C623	1-162-282-31	CERAMIC	100PF	10%	50V
C624	1-162-282-31	CERAMIC	100PF	10%	50V
C625	1-136-173-00	FILM	0.47uF	5%	50V
C626	1-136-173-00	FILM	0.47uF	5%	50V
		< CONNECTOR >			
* CN601	1-568-862-11	SOCKET, CONNECTOR 19P			
		< DIODE >			
D601	8-719-812-44	LED	TLO124 (ENTER/NEXT)		
D602	8-719-812-44	LED	TLO124 (MULTI CONTROLLER)		
D603	8-719-032-87	LED	SEL5420E-TP15 (SLEEP)		
D604	8-719-812-44	LED	TLO124 (REC)		
D605	8-719-032-87	LED	SEL5420E-TP15 (DAILY)		
		< FILTER >			
FL601	1-517-368-11	INDICATOR TUBE, FLUORESCENT			
		< COIL >			
L601	1-408-421-00	INDUCTOR	100uH		
L602	1-408-421-00	INDUCTOR	100uH		
		< TRANSISTOR >			
Q601	8-729-422-57	TRANSISTOR UN4111 (AEP:Made in Japan, E, AUS, EA, MX, MY, SP, HK, EE, JE, CIS)			
Q601	8-729-900-61	TRANSISTOR DTA114ES (AEP:Made in France, UK, IT, G)			
Q602	8-729-422-57	TRANSISTOR UN4111 (AEP:Made in Japan, E, AUS, EA, MX, MY, SP, HK, EE, JE, CIS)			
Q602	8-729-900-61	TRANSISTOR DTA114ES (AEP:Made in France, UK, IT, G)			

Ref. No.	Part No.	Description			Remark
		< RESISTOR >			
R601	1-249-413-11	CARBON	470	5%	1/4W
R602	1-249-415-11	CARBON	680	5%	1/4W
R603	1-249-417-11	CARBON	1K	5%	1/4W
R604	1-249-419-11	CARBON	1.5K	5%	1/4W
R605	1-249-421-11	CARBON	2.2K	5%	1/4W
R606	1-249-425-11	CARBON	4.7K	5%	1/4W
R607	1-249-413-11	CARBON	470	5%	1/4W
R608	1-249-415-11	CARBON	680	5%	1/4W
R609	1-249-417-11	CARBON	1K	5%	1/4W
R610	1-249-419-11	CARBON	1.5K	5%	1/4W
R611	1-249-421-11	CARBON	2.2K	5%	1/4W
R612	1-249-425-11	CARBON	4.7K	5%	1/4W
R614	1-249-409-11	CARBON	220	5%	1/4W
R615	1-249-409-11	CARBON	220	5%	1/4W
R616	1-249-411-11	CARBON	330	5%	1/4W
R617	1-249-411-11	CARBON	330	5%	1/4W
R618	1-249-411-11	CARBON	330	5%	1/4W
R620	1-247-807-31	CARBON	100	5%	1/4W
R621	1-249-417-11	CARBON	1K	5%	1/4W
R622	1-249-417-11	CARBON	1K	5%	1/4W
R623	1-249-417-11	CARBON	1K	5%	1/4W
R624	1-249-434-11	CARBON	27K	5%	1/4W
R625	1-249-429-11	CARBON	10K	5%	1/4W
		< SWITCH >			
S601	1-554-303-21	SWITCH, TACTILE (MEMOREY) (AUS, E, EA, MX, MY, SP, HK, JE, CIS)			
S601	1-554-303-21	SWITCH, TACTILE (EON) (AEP, UK, G, IT, EE)			
S602	1-554-303-21	SWITCH, TACTILE (STEREO/MONO) (AUS, E, EA, MX, MY, SP, HK, JE, CIS)			
S602	1-554-303-21	SWITCH, TACTILE (PTY) (AEP, UK, G, IT, EE)			
S603	1-554-303-21	SWITCH, TACTILE (DISPLAY)			
S604	1-554-303-21	SWITCH, TACTILE (SLEEP)			
S605	1-554-303-21	SWITCH, TACTILE (REC)			
S606	1-554-303-21	SWITCH, TACTILE (DAILY)			
S607	1-554-303-21	SWITCH, TACTILE (TIMER SET)			
S608	1-554-303-21	SWITCH, TACTILE (ENTER/NEXT)			
S609	1-554-303-21	SWITCH, TACTILE (BAND)			
S610	1-554-303-21	SWITCH, TACTILE (PRESET) (AUS, E, EA, MX, MY, SP, HK, JE, CIS)			
S610	1-554-303-21	SWITCH, TACTILE (MEMORY) (AEP, UK, G, IT, EE)			
S611	1-554-303-21	SWITCH, TACTILE (AUTO) (AUS, E, EA, MX, MY, SP, HK, JE, CIS)			
S611	1-554-303-21	SWITCH, TACTILE (TUNING MODE) (AEP, UK, G, IT, EE)			
S612	1-554-303-21	SWITCH, TACTILE (MANUAL) (AUS, E, EA, MX, MY, SP, HK, JE, CIS)			

PANEL POLAR

Ref. No.	Part No.	Description	Remark
S612	1-554-303-21	SWITCH, TACTILE (STEREO/MONO) (AEP, UK, G, IT, EE)	
S613	1-554-303-21	SWITCH, TACTILE (CHARACTOR)	
S614	1-554-303-21	SWITCH, TACTILE (CLOCK SET)	
S615	1-467-914-11	ENCODER, ROTARY (MULTI CONTROLLER)	

****

A-4369-349-A POLAR BOARD, COMPLETE (CIS)
****

< CAPACITOR >

C1701	1-162-294-31	CERAMIC	0.001uF	10%	50V (CIS)
C1702	1-130-014-00	FILM	470PF	5%	50V (CIS)
C1703	1-124-902-00	ELECT	0.47uF	20%	50V (CIS)
C1704	1-124-902-00	ELECT	0.47uF	20%	50V (CIS)
C1705	1-164-098-11	CERAMIC	0.047uF		12V (CIS)
C1706	1-124-903-11	ELECT	1uF	20%	50V (CIS)
C1707	1-162-288-31	CERAMIC	330PF	10%	50V (CIS)
C1710	1-130-471-00	MYLAR	0.001uF	5%	50V (CIS)
C1710	1-137-364-11	FILM	0.001uF	5%	50V (CIS)
C1711	1-130-471-00	MYLAR	0.001uF	5%	50V (CIS)
C1711	1-137-364-11	FILM	0.001uF	5%	50V (CIS)
C1712	1-130-736-11	FILM	0.01uF	5%	50V (CIS)
C1713	1-130-736-11	FILM	0.01uF	5%	50V (CIS)
C1714	1-124-903-11	ELECT	1uF	20%	50V (CIS)
C1715	1-124-903-11	ELECT	1uF	20%	50V (CIS)
C1716	1-124-903-11	ELECT	1uF	20%	50V (CIS)
C1719	1-124-477-11	ELECT	47uF	20%	25V (CIS)
C1720	1-162-306-11	CERAMIC	0.01uF	30%	16V (CIS)
C1723	1-162-306-11	CERAMIC	0.01uF	30%	16V (CIS)
C1724	1-162-306-11	CERAMIC	0.01uF	30%	16V (CIS)
C1725	1-124-477-11	ELECT	47uF	20%	25V (CIS)
C1726	1-124-903-11	ELECT	1uF	20%	50V (CIS)
C1727	1-124-903-11	ELECT	1uF	20%	50V (CIS)
C1728	1-104-792-51	ELECT	33uF	20%	16V (CIS)

< CONNECTOR >

* CN2	1-568-832-11	SOCKET, CONNECTOR 13P (CIS)	
* CN1701	1-568-832-11	SOCKET, CONNECTOR 13P (CIS)	

< TRIMMER >

CT1701	1-141-260-00	CAP, TRIMMER	50PF (CIS)

< DIODE >

D1701	8-719-987-63	DIODE	1N4148M (CIS)
D1703	8-719-987-63	DIODE	1N4148M (CIS)
D1704	8-719-987-63	DIODE	1N4148M (CIS)
D1705	8-719-987-63	DIODE	1N4148M (CIS)

Ref. No.	Part No.	Description	Remark

< IC >

IC1701	8-759-063-04	IC	IR3R42 (CIS)
IC1703	8-759-140-53	IC	uPD4053BC (CIS)

< COIL >

L1701	1-409-497-11	COIL (FILTER) (CIS)	

< TRANSISTOR >

Q1701	8-729-900-61	TRANSISTOR	DTA114ES (CIS)
Q1702	8-729-900-80	TRANSISTOR	DTC114ES (CIS)
Q1704	8-729-900-80	TRANSISTOR	DTC114ES (CIS)

< RESISTOR >

R1701	1-247-863-91	CARBON	22K	5%	1/4W (CIS)
R1702	1-249-435-11	CARBON	33K	5%	1/4W (CIS)
R1703	1-249-427-11	CARBON	6.8K	5%	1/4W (CIS)
R1704	1-247-858-11	CARBON	13K	5%	1/4W (CIS)
R1705	1-249-417-11	CARBON	1K	5%	1/4W (CIS)
R1706	1-249-417-11	CARBON	1K	5%	1/4W (CIS)
R1707	1-249-441-11	CARBON	100K	5%	1/4W (CIS)
R1708	1-249-440-11	CARBON	82K	5%	1/4W (CIS)
R1709	1-249-437-11	CARBON	47K	5%	1/4W (CIS)
R1710	1-249-429-11	CARBON	10K	5%	1/4W (CIS)
R1711	1-249-429-11	CARBON	10K	5%	1/4W (CIS)
R1714	1-249-426-11	CARBON	5.6K	5%	1/4W (CIS)
R1715	1-249-426-11	CARBON	5.6K	5%	1/4W (CIS)
R1716	1-249-441-11	CARBON	100K	5%	1/4W (CIS)
R1717	1-249-441-11	CARBON	100K	5%	1/4W (CIS)
R1718	1-249-429-11	CARBON	10K	5%	1/4W (CIS)
R1719	1-249-429-11	CARBON	10K	5%	1/4W (CIS)
R1721	1-249-434-11	CARBON	27K	5%	1/4W (CIS)
R1722	1-249-441-11	CARBON	100K	5%	1/4W (CIS)

< VARIABLE RESISTOR >

RV1701	1-238-600-11	RES, ADJ, CARBON 10K (SUB CARRIER) (CIS)	
RV1702	1-238-599-11	RES, ADJ, CARBON 4.7K (VCO FREQUENCY) (CIS)	

< TEST PIN >

* TP1701	1-560-061-00	PIN, CONNECTOR 3P (CIS)	
* TP1702	1-560-061-00	PIN, CONNECTOR 3P (CIS)	

****

Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS	
		*************	
7	1-765-242-31	WIRE (FLAT TYPE) (19 CORE)	
15	1-751-688-11	WIRE (FLAT TYPE) (13 CORE) (CIS)	
E101	1-537-770-11	TERMINAL BOARD, GROUND	
E102	1-537-770-11	TERMINAL BOARD, GROUND	
**********			
		ACCESSORIES & PACKING MATERIALS	
		******************************	
*	4-972-591-01	CUSHION (ST) (FRONT)	(AEP:Made in France, UK, IT, G)
*	4-972-592-01	CUSHION (ST) (REAR)	(AEP:Made in France, UK, IT, G)
*	4-972-593-01	INDIVIDUAL CARTON	(AEP:Made in France, UK, IT, G)
**********			
		********************	
		HARDWARE LIST	
		********************	
#1	7-685-646-79	SCREW +BVTP 3×8 TYPE2 N-S	
#2	7-685-871-01	SCREW +BVTT 3×6 (S)	

Sony Corporation
Consumer A&V Products Company
Home A&V Products Div.

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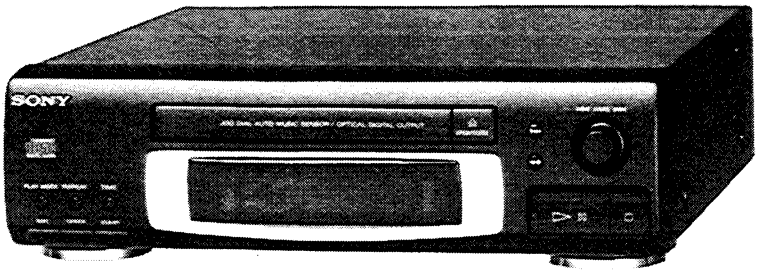
Quality Engineering Dept.

V04256

CDP-EX10

SERVICE MANUAL

AEP Model
UK Model
E Model
Australian Model
Tourist Model



This set is the CD player section in MHC-EX5/EX7/EX9AV/EX10AV.

Model Name Using Similer Mechanism	NEW
CD Transport Mechanism Type	CDM28-5BD19
Base Unit Type	BU-5BD19
Optical Pick-Up Type	KSS-213B

SPECIFICATIONS

System: Compact disc digital audio system
Laser: Semiconductor laser
Wavelength: 780 – 790 nm
Frequence response: 20 Hz – 20 kHz (±0.5 dB)
Signal-to-noise ratio: More than 105 dB
Dynamic range: More than 95 dB
Outputs
- CD OUT (phono jacks):
  - Output level 2 V (at 50 kilohms)
  - Load impedance over 10 kilohms
- CD DIGITAL OPTICAL OUT (Square optical connector jack, rear panel):
  - wave length 660 nm
  - output level –18 dBm

Dimensions: Approx. 280 x 85 x 285 mm (w/h/d) (11 1/8 x 3 3/8 x 11 1/4 inches)
Mass: Approx. 2.0 kg (4 lb 7 oz)

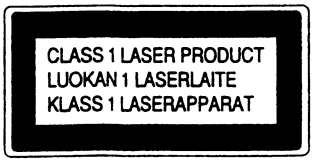
Design and specifications are subject to change without notice.

COMPACT DISC PLAYER

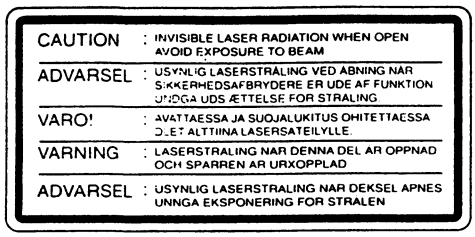
SONY®

MICROFILM

Laser component in this product is capable of emitting radiation exceeding the limit for Class 1.



This Compact Disc player is classfied as a CLASS 1 LASER product.
The CLASS 1 LASER product label is located on the rear exterior.


CAUTION : INVISIBLE LASER RADIATION WHEN OPEN AVOID EXPOSURE TO BEAM
ADVARSEL : USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION UNDGÅ UDSÆTTELSE FOR STRÅLING
VARO! : AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA LASERSATEILYLLE.
VARNING : LASERSTRÅLING NÄR DENNA DEL ÄR OPPNAD OCH SPÄRREN ÄR URXOPPLAD
ADVARSEL : USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN

This caution label is located inside the unit.

CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270 °C during repairing.
- Do not touch the soldering iron on the same conductor ofthe circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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SERVICING NOTE

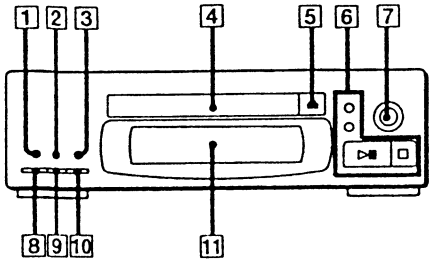
• POWER SUPPLIED WHILE SERVICING

This unit does not work independently because of not having the power supply.
It must be unite together with the other units when repaired.

SECTION 1
GENERAL

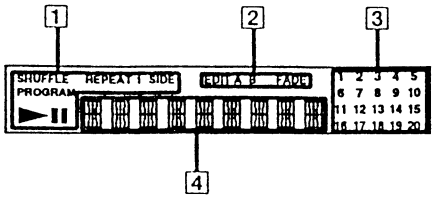
This section is extracted from instruction manual.

Front Panel



1 PLAY MODE button (8, 17)
2 REPEAT button (9)
3 TIME button (7)
4 Disc tray (7)
5 ≙ OPEN/CLOSE button (open/close of the disc tray) (7, 15)
6 CD player operating buttons
◀◀ / ▶▶ (manual search) (8)
▷II (play/pause) (7, 16)
□ (stop) (7, 15)
7 I◀◀ AMS ▶▶I control (7, 17)
8 EDIT button (16, 17)
9 CHECK button (8, 17)
10 CLEAR button (8)
11 Display window (7, 16, 17)

Display Window



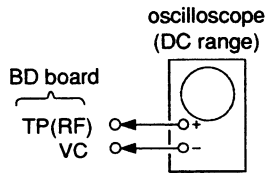
1 CD play mode indication (7)
2 CD edit mode indication (16)
3 Music calendar (7, 16)
4 Step/track number/playing time indication (7, 9, 16)

SECTION 2
ELECTRICAL ADJUSTMENTS

Note :

1. Basically designed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use an oscilloscope with more than 10MΩ impedance.
4. Clean the object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.
5. Adjust the focus bias adjustment when optical block is replaced.

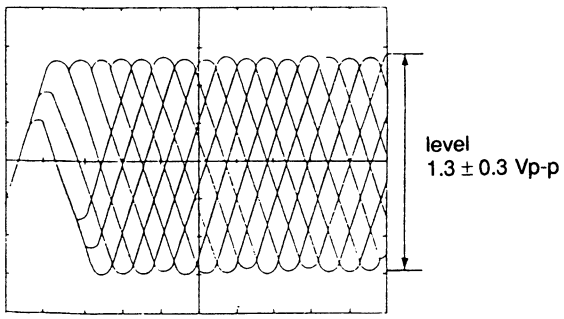
Focus Bias Adjustment



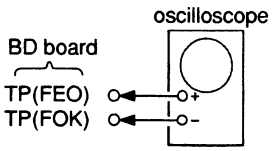
Procedure:

1. Connect oscilloscope to test point TP (RF). (GND terminal : VC)
2. Turned Power switch on.
3. Put disc (YEDS-18) in and playback.
4. Adjust RV101 so that the waveform is clear.
   (Clear RF signal waveform means that the shape "◊" can be clearly distinguished at the center of the waveform.)
5. After adjustment, check the RF signal level.

• RF signal
VOLT/DIV : 200 mV
TIME/DIV : 500 nS



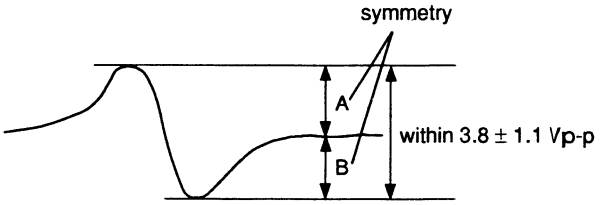
S Curve Check



Procedure :

1. Connect oscilloscope to test point TP (FEO).
2. Connect between test point TP (FOK) and GND by lead wire.
3. Turn Power switch on.
4. Put disc (YEDS-18) in and turned Power switch on again and actuate the focus search. (actuate the focus search when disc table is moving in and out.)
5. Check the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 3.8±1.1 Vp-p.

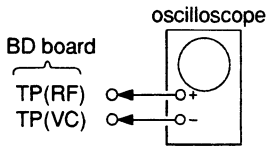
S-curve waveform



6. After check, remove the lead wire connected in step 2.

Note : • Try to measure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
• Take sweep time as long as possible and light up the brightness to obtain best waveform.

RF Level Check



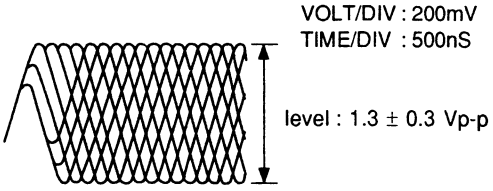
Procedure :

1. Connect oscilloscope to test point TP (RF) on BD board.
2. Turned Power switch on.
3. Put disc (YEDS-18) in and playback.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

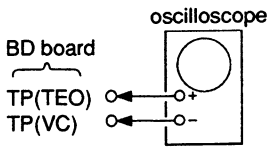
Note :

Clear RF signal waveform means that the shape "◊" can be clearly distinguished at the center of the waveform.

RF signal waveform

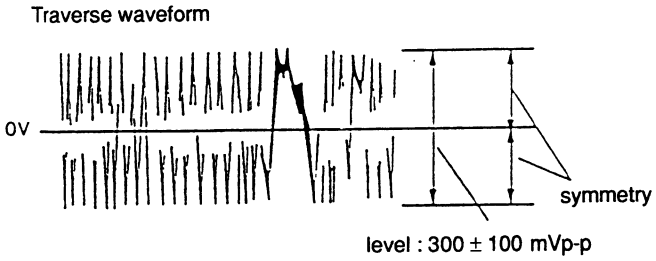


E-F Balance Check



Procedure :

1. Connect oscilloscpe to test point TP (TEO).
2. Turned Power switch on.
3. Connect pin ㉔ of IC601 on the PANEL board to GND with a lead wire.
4. Put disc (YEDS-18) in and playback.
5. Push TIME button.
6. Confirm that the oscilloscope waveform is symmetrical on the top and bottom in relation to 0Vdc, and check this level.



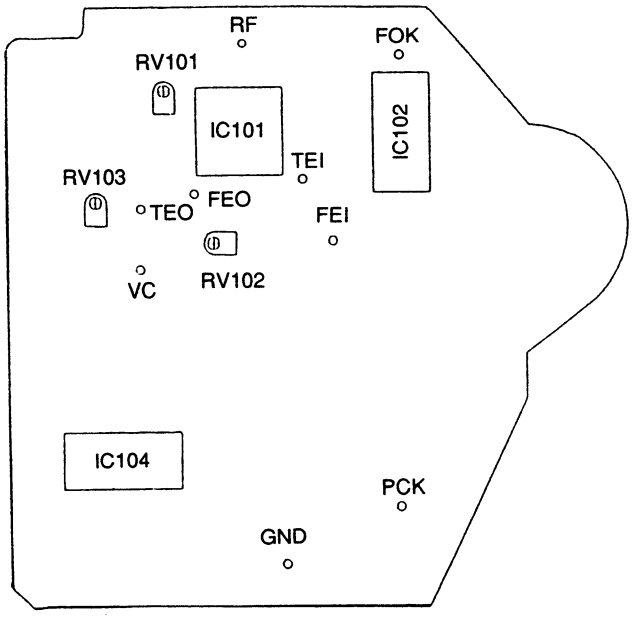
7. Remove the lead wire connected in step 1.

Focus/Tracking Gain Adjustment (RV102, RV103)

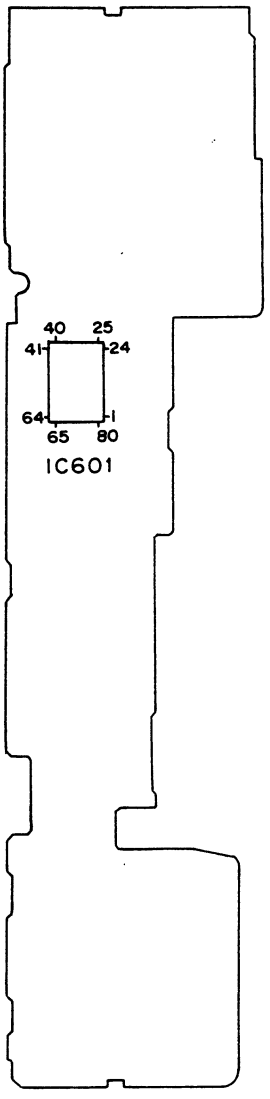
This gain has a margin, so even if it is slightly off.
There is no problem.
Therfore, do not perform this adjustment.
Please note that it should be fixed to mechanical center position when you moved and do not know original position.

Adjustment Location :

[BD BOARD] (Conductor Side)



[PANEL BOARD] (Conductor Side)



SECTION 3
DIAGRAMS

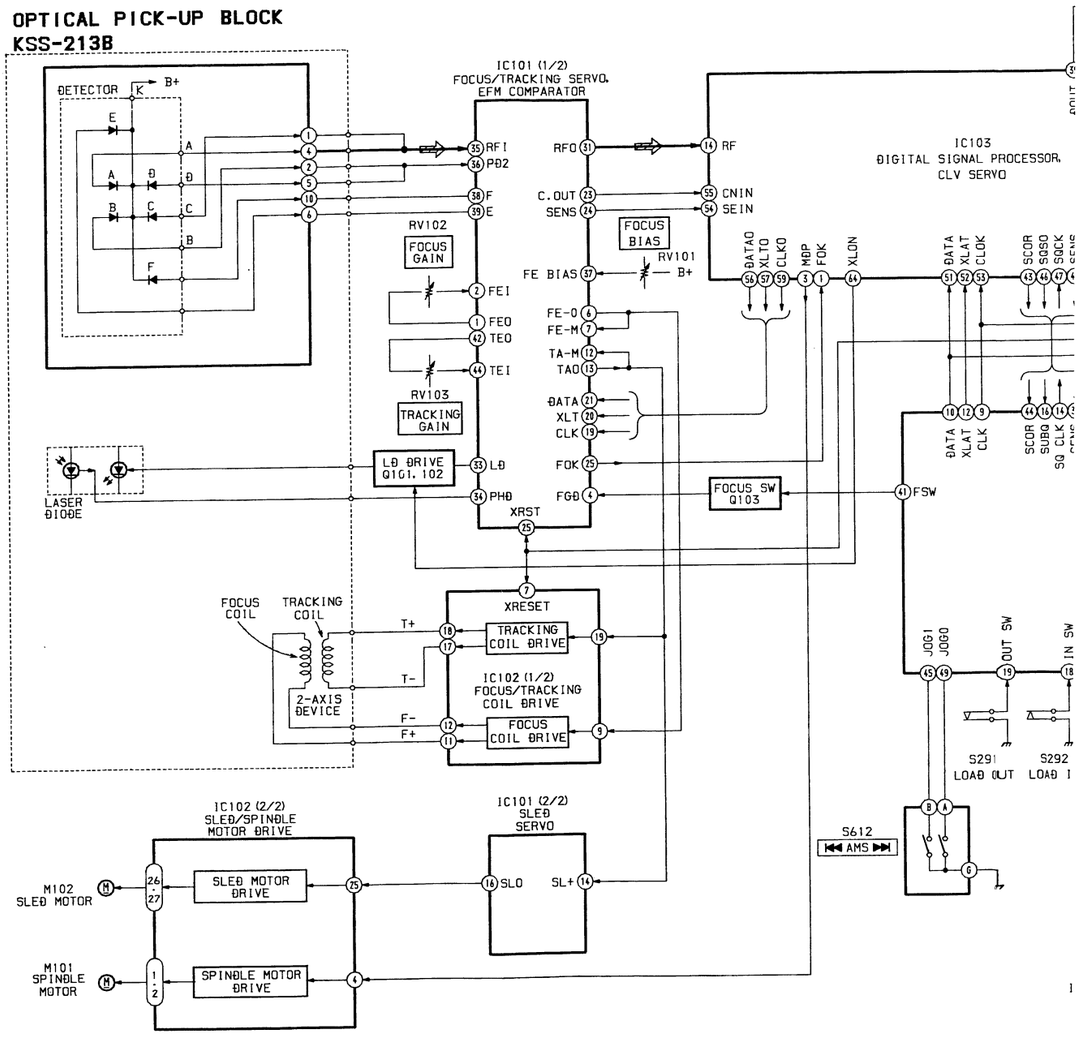
3-1. IC PIN FUNCTIONS

- **IC601 SYSTEM CONTROL, FL DRIVER (μPD78044AGF)**

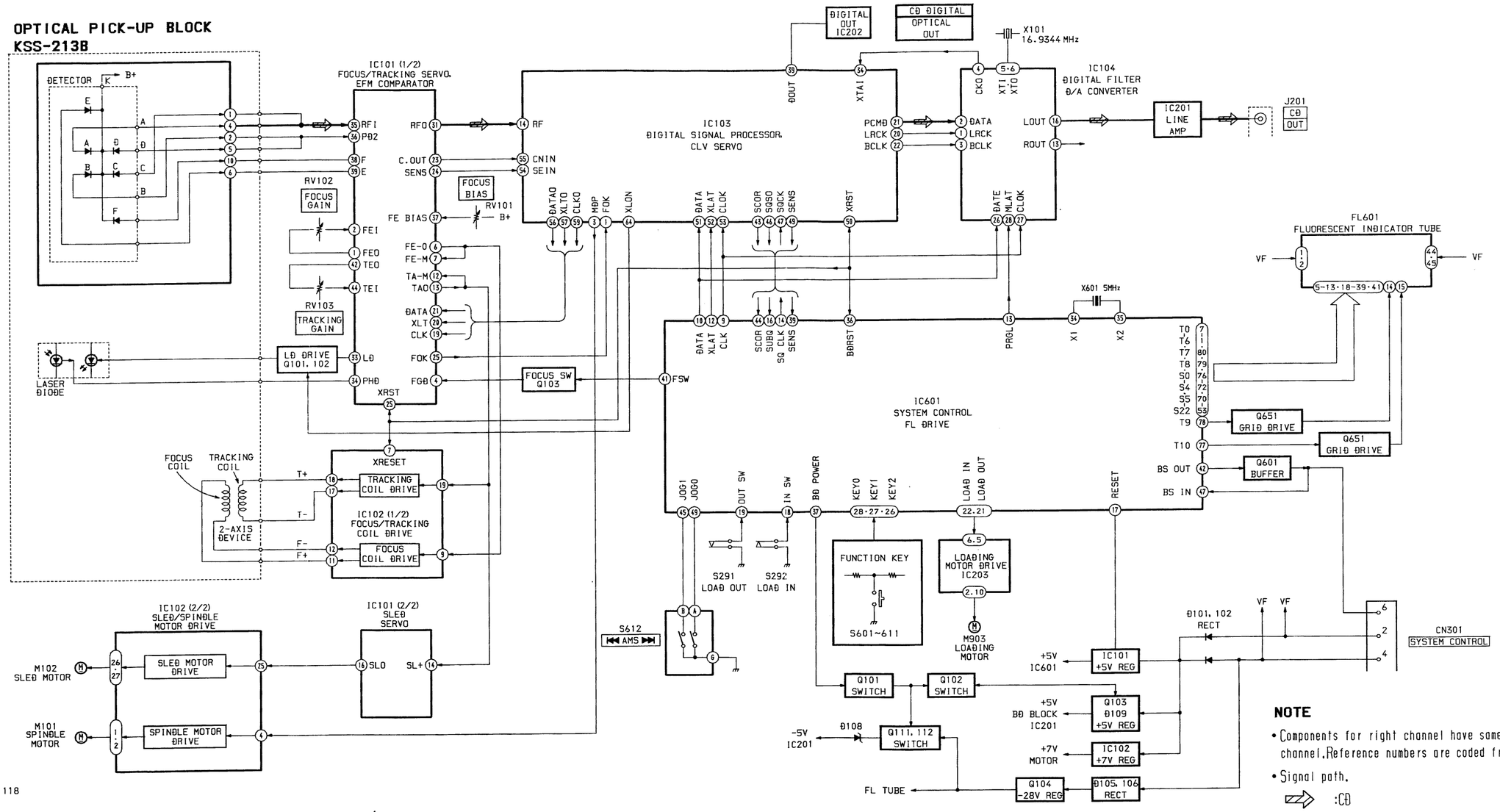
Pin No.	Pin Name	I/O	Function
1	T6	O	FL display grid output
2	T5	O	
3	T4	O	
4	T3	O	
5	T2	O	
6	T1	O	
7	T0	O	
8	VDD	–	+5V power supply
9	CLK	O	Serial clock output to DSP (CXD-2507AQ)
10	DATA	O	Serial data output to DSP (CXD-2507AQ)
11	———	–	Fixed at GND
12	XLAT	O	Serial data latch pulse output to DSP (CXD-2507AQ)
13	PRGL	O	Serial data latch pulse output to D/F DAC (PCM-1710U)
14	SQCLK	O	Subcode Q data read clock output to DSP (CXD-2507AQ)
15	———	–	Not used (open)
16	SUBQ	I	Subcode Q data input from DSP (CXD-2507AQ)
17	RESET	I	System reset input ("L"=Active)
18	INSW	I	S292 (loading-in switch) input
19	OUTSW	I	S291 (loading-out switch) input
20	AVss	–	GND
21	LDOUT	O	Output for rotating M903 (loading motor) in the loading-out direction
22	LDIN	O	Output for rotating M903 (loading motor) in the loading-in direction
23	ADJ	I	Test mode input. "L"=Stops GFS check.
24	AFADJ	I	Test mode input. Fixed at "H" ("L":Test mode)
25	MODE	I	Not used (Fixed at "H")
26	KEY2	I	Key AD input
27	KEY1	I	
28	KEY0	I	
29	AVDD	–	+5V power supply
30	AVREF	–	
31	———	–	Fixed at GND
32	———	–	Not used (open)
33	Vss	–	GND
34	X1	I	Clock (4MHz)
35	X2	O	
36	BDRST	O	BD reset output
37	BDPOWER	O	BD power ON/OFF output
38	———	–	Not used (open)
39	SENS	I	SENS input from DSP (CXD-2507AQ)
40	AMUTE	O	Muting ON/OFF output

Pin No.	Pin Name	I/O	Function
41	FSW	O	
42	BSOUT	O	Audio bus output
43	———	–	Not used (open)
44	SCOR	I	Subcode sync S0+S1 detection input
45	JOG1	I	JOG input
46	———	–	Not used (open)
47	BSIN	I	Audio bus input
48	IC (VPP)	–	Connect to GND
49	JOG0	I	JOG input
50	———	–	Not used (open)
51	———	–	
52	VDD	–	+5V power supply
53	S22	O	FL display segment output
54	S21	O	
55	S20	O	
56	S19	O	
57	S18	O	
58	S17	O	
59	S16	O	
60	S15	O	
61	S14	O	
62	S13	O	
63	S12	O	
64	S11	O	
65	S10	O	
66	S9	O	
67	S8	O	
68	S7	O	
69	S6	O	
70	S5	O	
71	VLOAD	–	–28V power supply for driving FL display
72	S4	O	FL display segment output
73	S3	O	
74	S2	O	
75	S1	O	
76	S0	O	
77	T10	O	FL display grid output
78	T9	O	
79	T8	O	
80	T7	O	

3-2. BLOCK DIAGRAM



3-2. BLOCK DIAGRAM

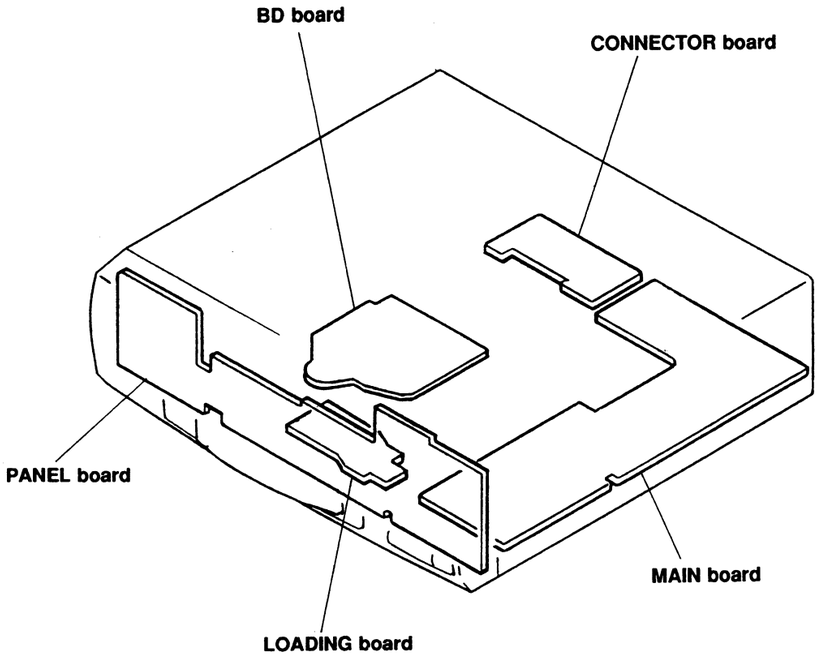


118

NOTE

- Components for right channel have same values as for left channel. Reference numbers are coded from
- Signal path.
  ⇨ :CD

3-3. CIRCUIT BOARDS LOCATION

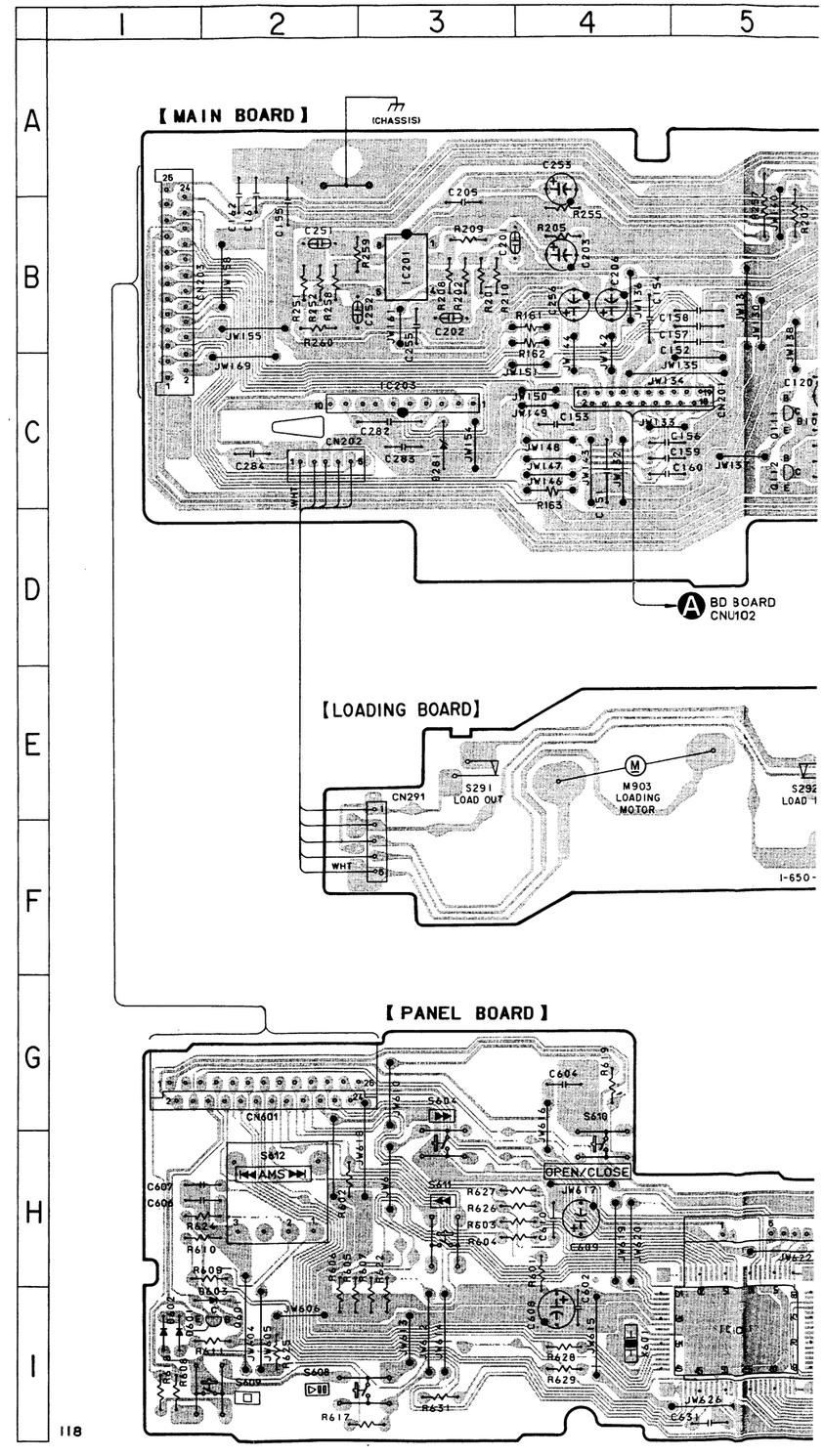


3-4. PRINTED WIRING BOARD — MAIN SECTION —

• See page 19 for Semiconductor Lead Layouts.

• **Semiconductor Location**

Ref. No.	Location
D101	E-9
D102	E-9
D105	E-9
D106	E-9
D107	C-6
D108	C-6
D109	B-8
D110	C-7
D111	D-9
D112	D-9
D281	C-3
D601	I-1
D602	I-1
D603	I-2
IC101	A-8
IC102	C-9
IC201	B-3
IC202	D-10
IC203	C-3
IC601	I-5
Q101	B-10
Q102	B-9
Q103	B-8
Q104	C-7
Q111	C-5
Q112	C-5
Q601	I-2
Q651	I-9
Q652	I-9



VIDE-V04256 / DRUCK: 3

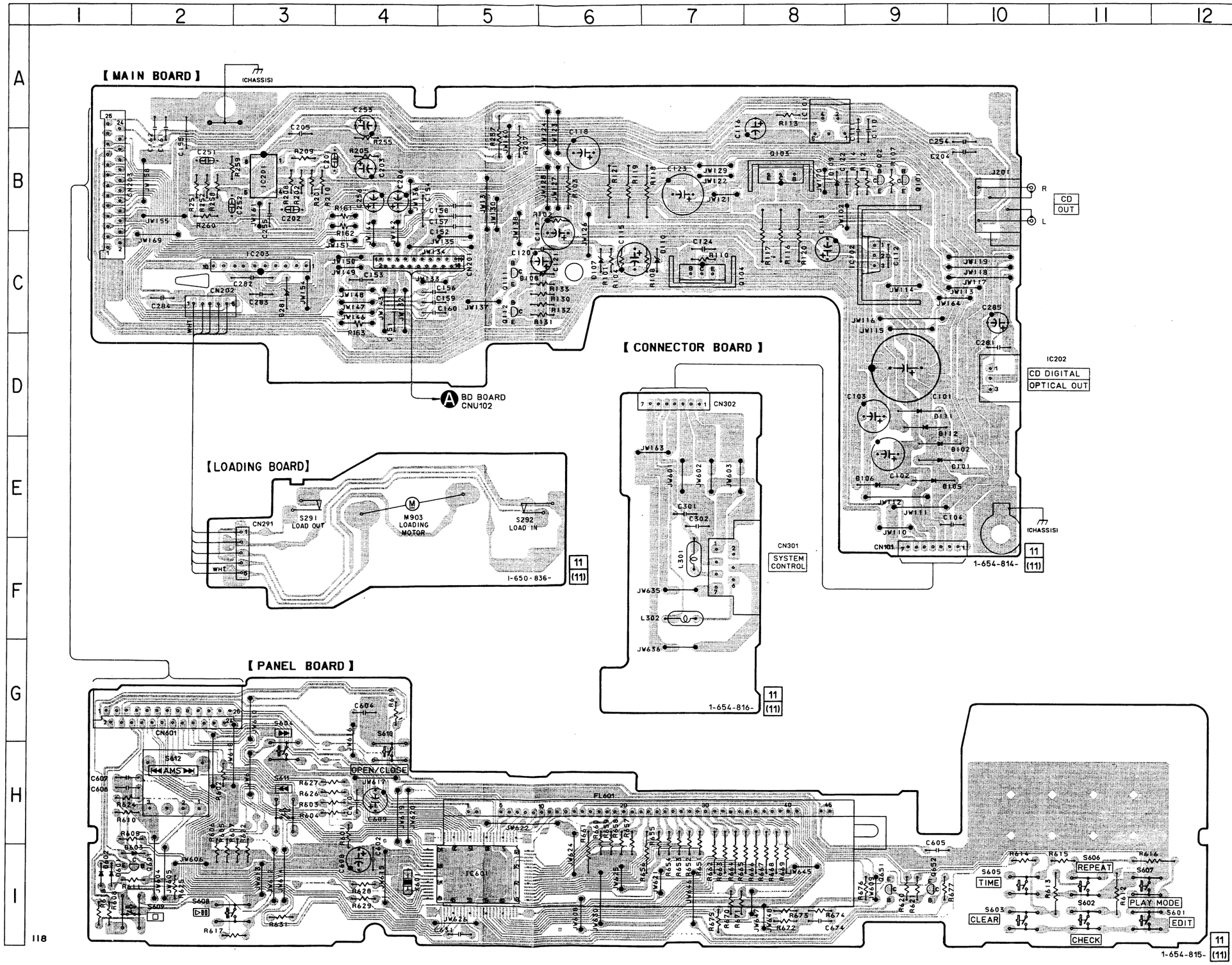
3-4. PRINTED WIRING BOARD — MAIN SECTION —

• See page 19 for Semiconductor Lead Layouts.

Note:
- ○—— : parts extracted from the component side.
- ▒▒▒ : Pattern on the side which is seen.

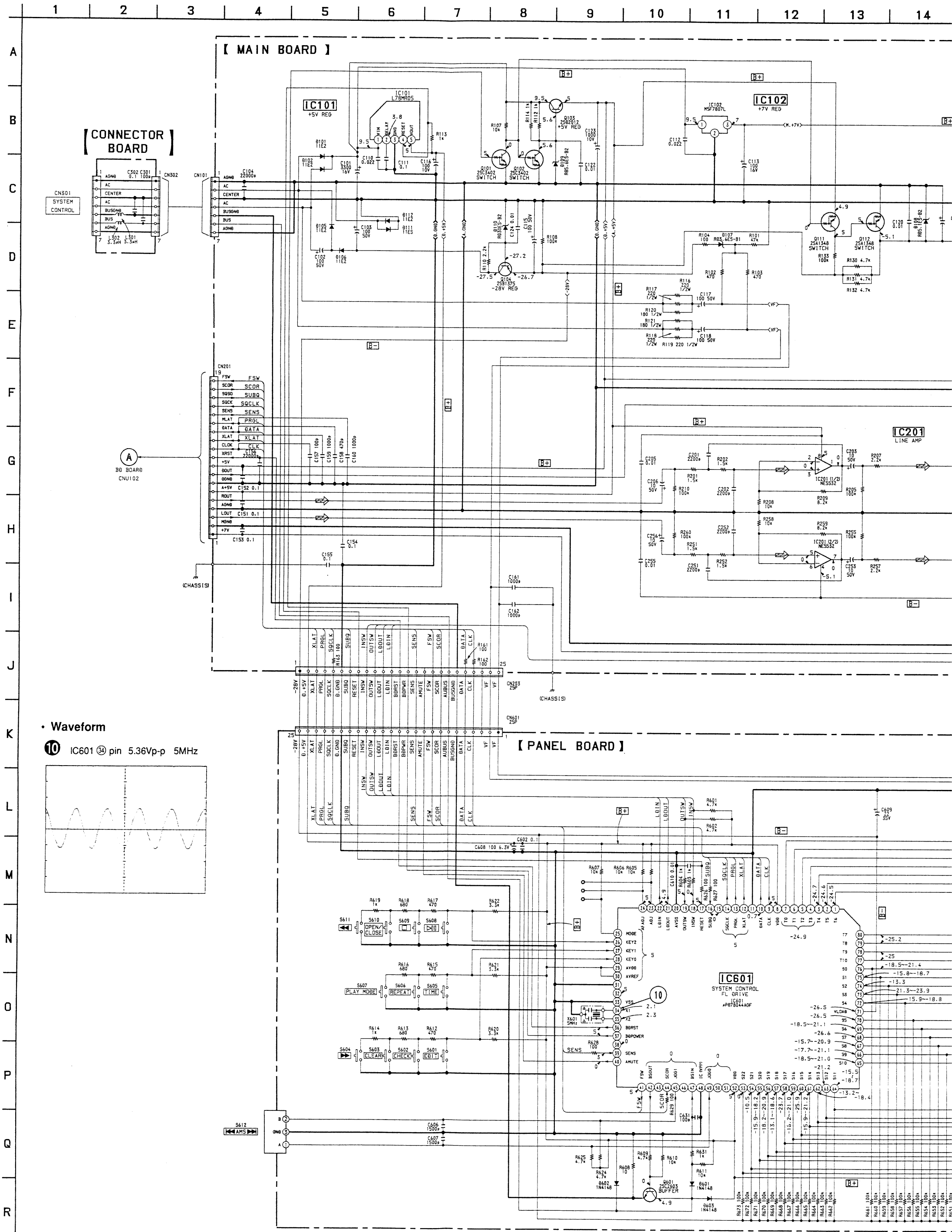
• **Semiconductor Location**

Ref. No.	Location
D101	E-9
D102	E-9
D105	E-9
D106	E-9
D107	C-6
D108	C-6
D109	B-8
D110	C-7
D111	D-9
D112	D-9
D281	C-3
D601	I-1
D602	I-1
D603	I-2
IC101	A-8
IC102	C-9
IC201	B-3
IC202	D-10
IC203	C-3
IC601	I-5
Q101	B-10
Q102	B-9
Q103	B-8
Q104	C-7
Q111	C-5
Q112	C-5
Q601	I-2
Q651	I-9
Q652	I-9



3-5. SCHEMATIC DIAGRAM — MAIN SECTION —

• See page 6 for IC Pin Functions. (IC601)



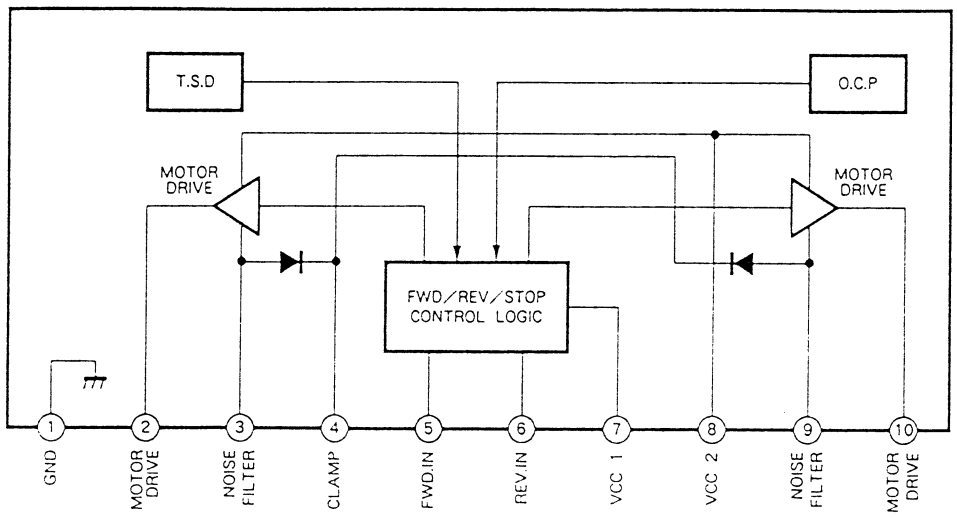
• **Waveform**

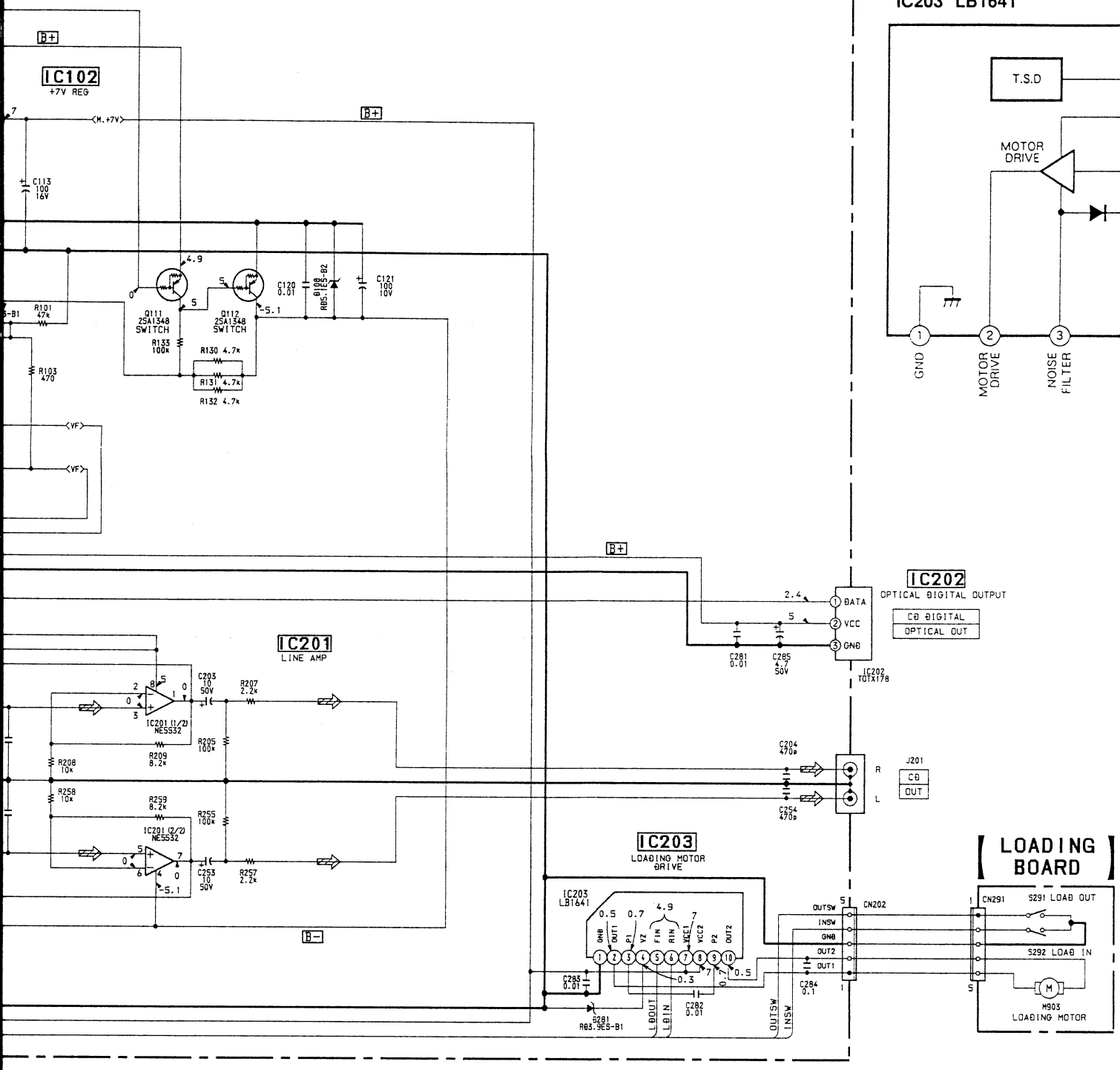
⑩ IC601 ㉞ pin 5.36Vp-p 5MHz

12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25

• IC Block Diagrams

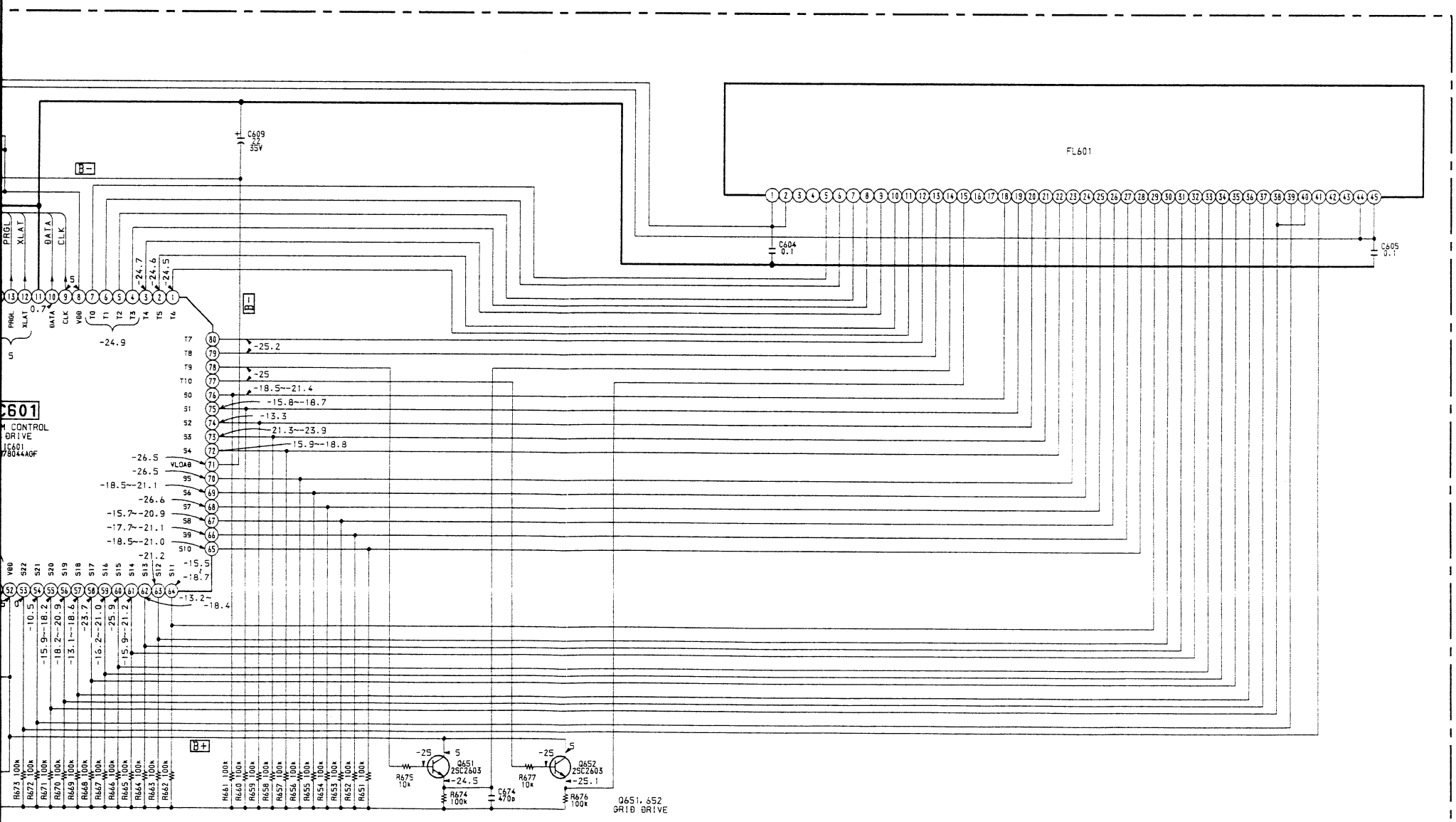
IC203 LB1641





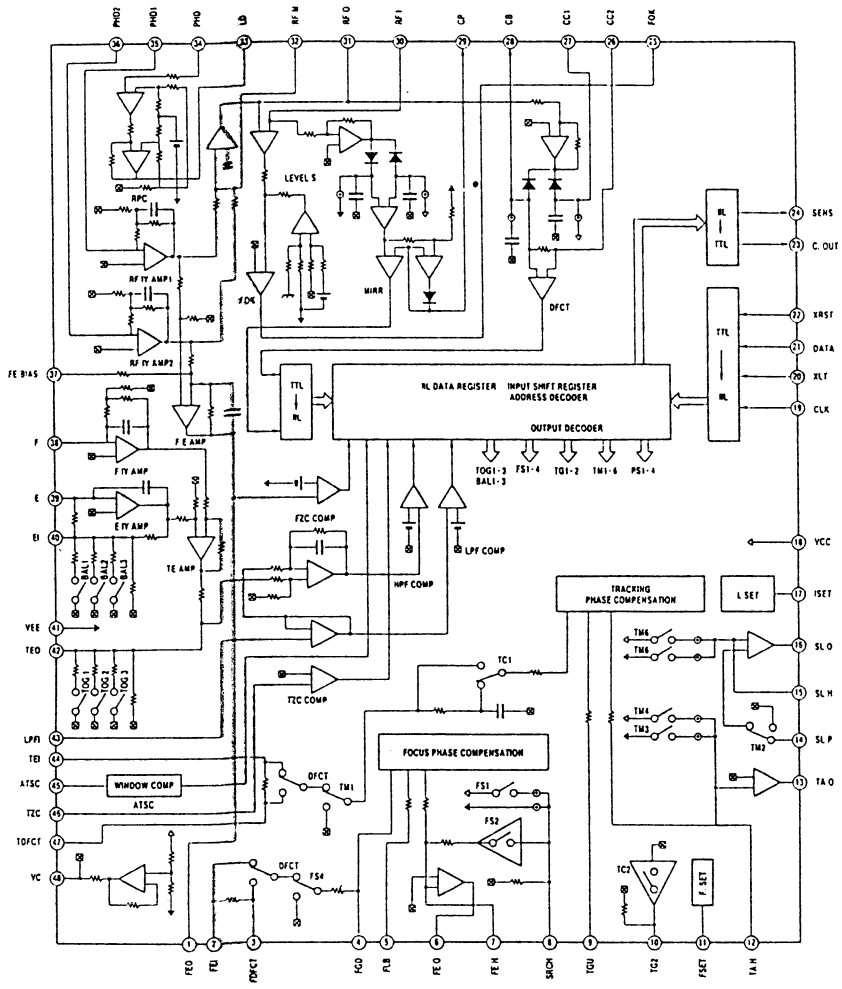
NOTE

- All capacitors are in μF unless otherwise noted. pF: μμF
  50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ :internal component.
- B+ :B+ Line.
- B− :B− Line.
- Voltages and waveforms are dc with respect to ground under no-signal (deturned) conditions.
  no mark: PLAY
- Voltages are taken with a VOM (Input impedance 10MΩ).
  Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ :CD

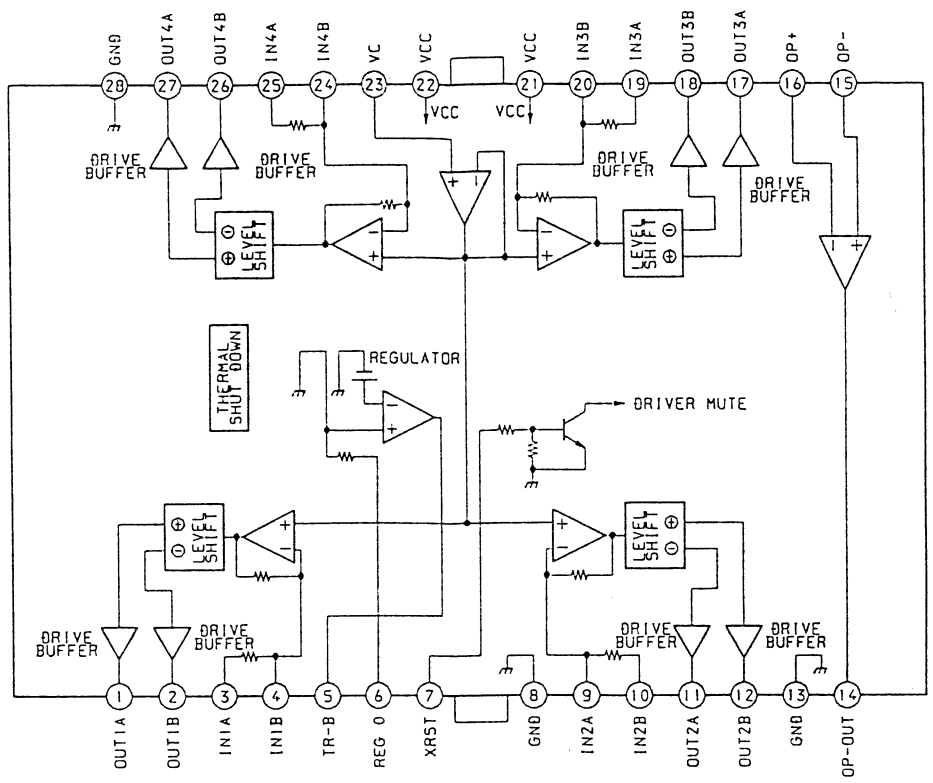


• IC Block Diagrams

IC101 CXA1782BQ

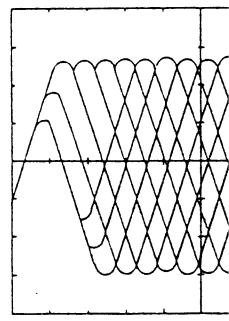


IC102 BA6397FP

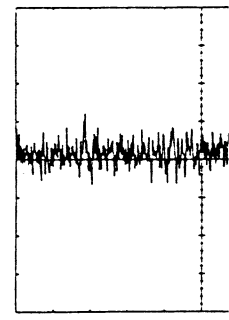


• Waveforms

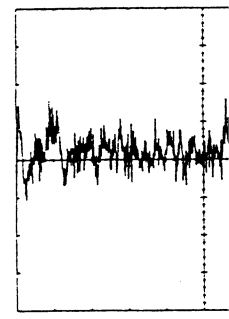
❶ IC101 ㉛ pin 1.4



❷ IC101 ㊹ pin 8m



❸ IC101 ② pin 20



3-6. SCHEMATIC DIAGRAM — BD SECTION —

NOTE

- All capacitors a 50WV or less are and tantalums.
- All resistors ar specified.

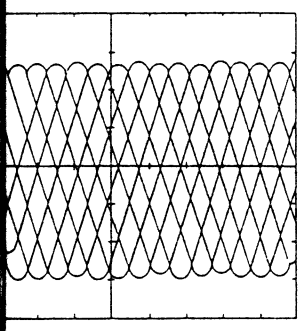
Note: The compone line with m Replace onl

- B+ :B+ Li
- B- :B- Li
- ▭ :adjus
- Voltages and wav under no-signal no mark: PLAY
- Voltages are tak Voltage variatio tion tolerances.
- Waveforms are ta Voltage variatio tion tolerances.
- Circled numbers
- Signal path.

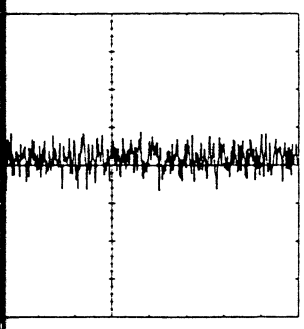
⇨ :CD

eforms

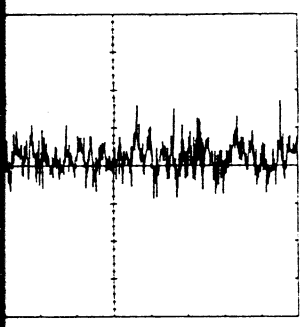
101 ㉛ pin 1.4Vp-p



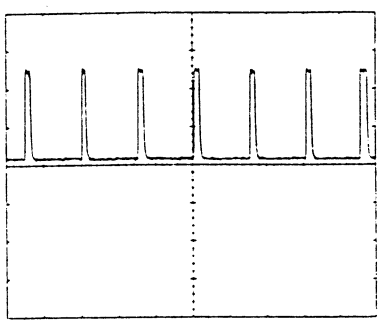
101 ㊹ pin 8mVp-p 0.2ms/DIV



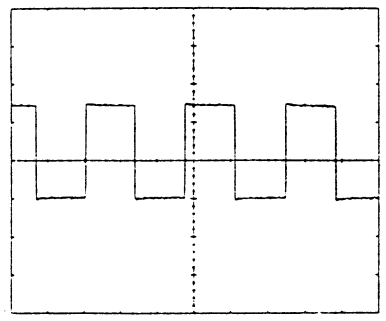
101 ② pin 20mVp-p 2ms/DIV



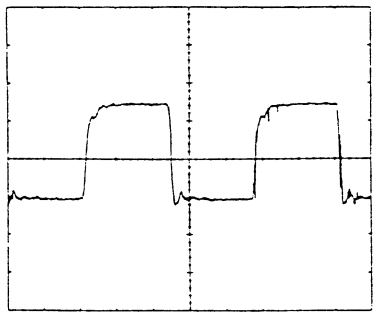
❹ IC103 ③ pin 2.4Vp-p 7.5µsec



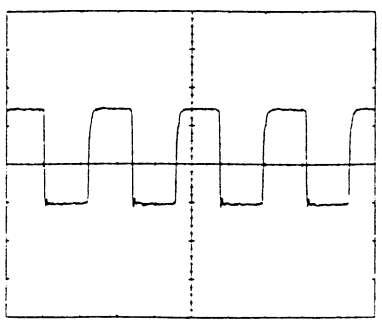
❺ IC103 ㉘ pin 5.1mVp-p 137µsec



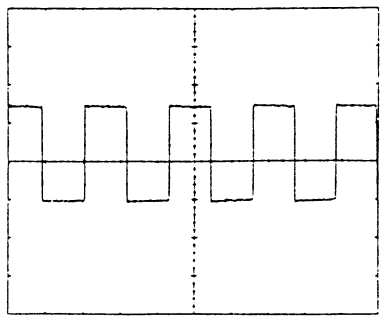
❻ IC103 ㉕ pin 5.1Vp-p 232.7sec



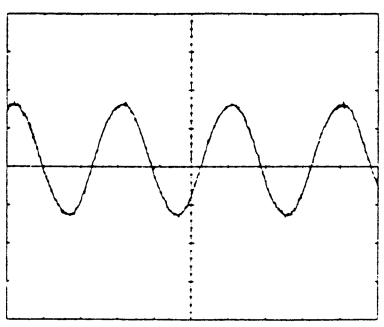
❼ IC103 ㉒ pin 5.1Vp-p 472.7nsec



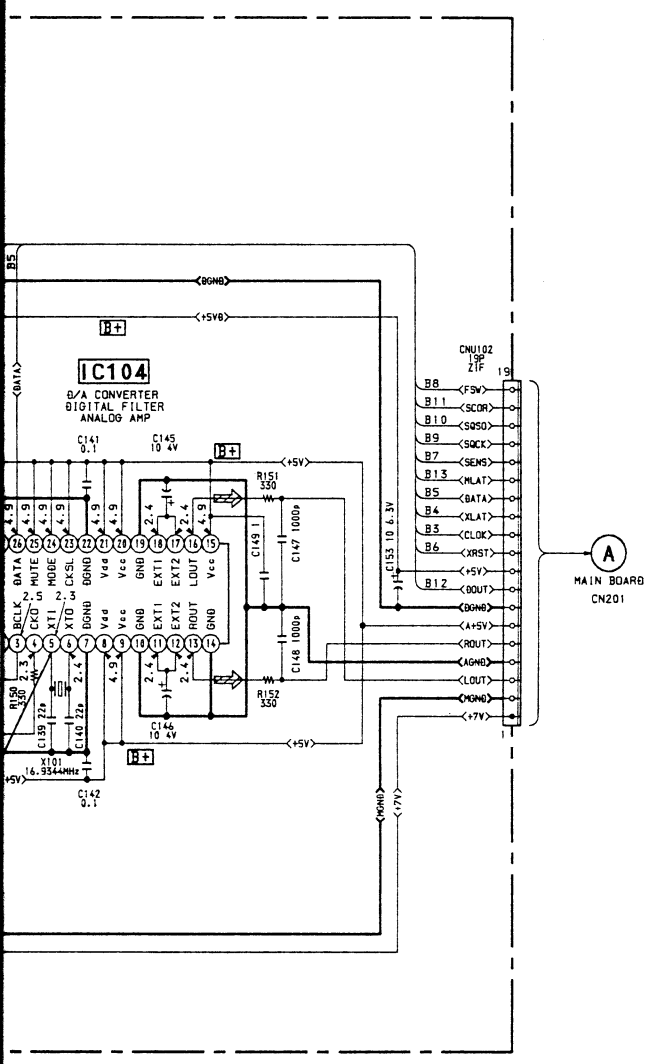
❽ IC103 ⑳ pin 5.1Vp-p 23µsec



❾ IC104 ⑤ pin 3Vp-p 16.9344MHz



14 | 15 | 16 | 17 | 18



NOTE

All capacitors are in µF unless otherwise noted. pF: µµF
50WV or less are not indicated except for electrolytics and tantalums.
All resistors are in Ω and 1/4W or less unless otherwise specified.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

B+ :B+ Line.
B− :B− Line.

▭ :adjustment for repair

Voltages and waveforms are dc with respect to ground under no-signal (deturned) conditions.
no mark: PLAY
Voltages are taken with a VOM (Input impedance 10MΩ).
Voltage variations may be noted due to normal production tolerances.
Waveforms are taken with a oscilloscope.
Voltage variations may be noted due to normal production tolerances.
Circled numbers refer to waveforms.

Signal path.
⇨ :CD

Note:
- ⊕ : Through hole.
- ▩ : Pattern on the side which is seen. (The other layer's patterns are not indicated.)

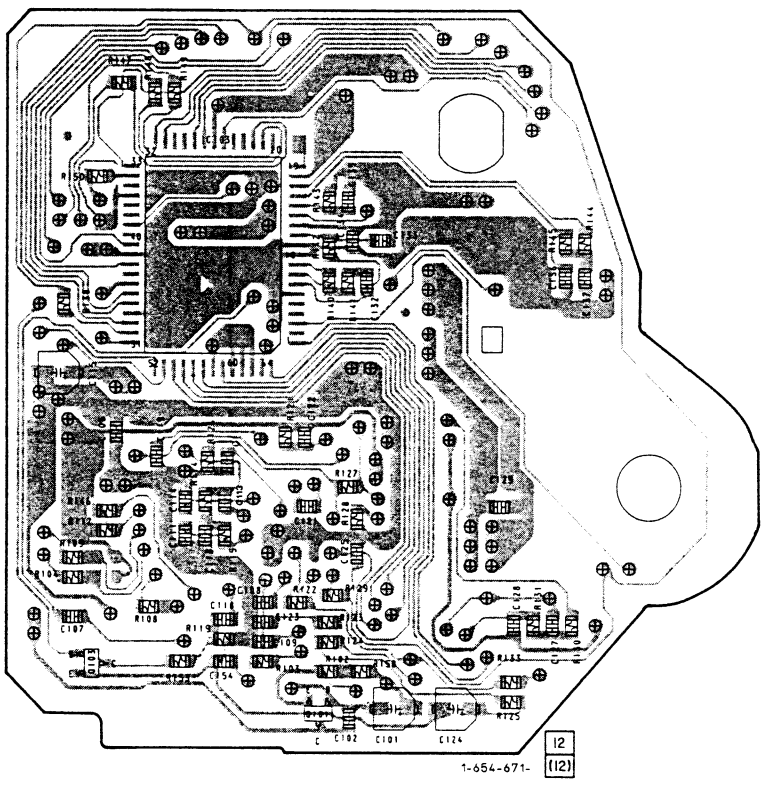
- **Semiconductor Location**

Ref. No.	Location
IC101	H-3
IC102	H-4
IC103	C-3
IC104	J-2
Q101	E-3
Q102	G-3
Q103	E-2

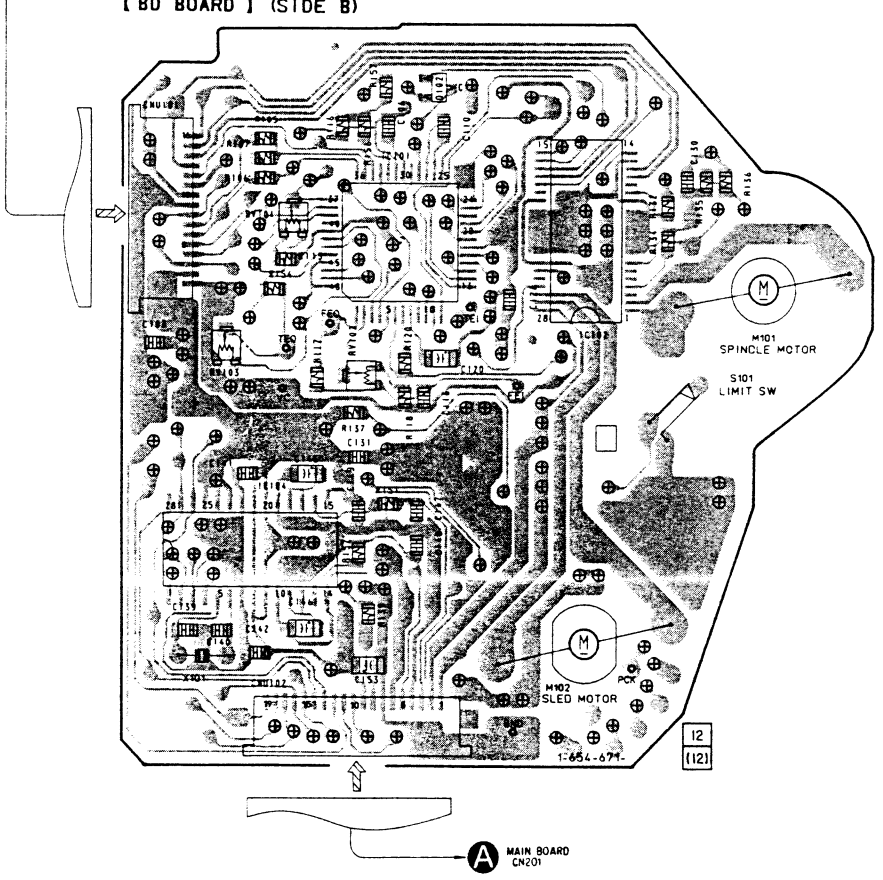
3-7. PRINTED WIRING BOARD — BD SECTION —

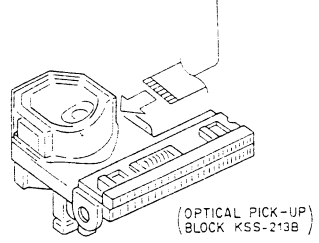
- See page 10 for Circuit Boards Location.
- See page 19 for Semiconductor Lead Layouts.

【 BD BOARD 】 (SIDE A)



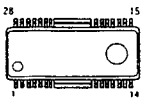
【 BD BOARD 】 (SIDE B)



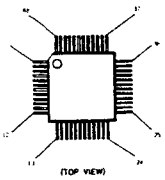


3-8. SEMICONDUCTOR LEAD LAYOUTS

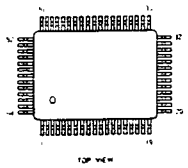
BA6397FP



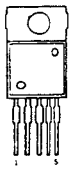
CXA1782BQ



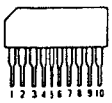
CXD2507AQ



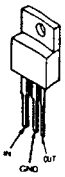
L78MR05



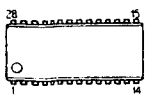
LB1641



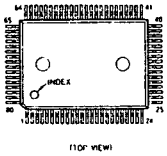
M5F7807



PCM1710U-B

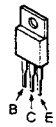


µPD78044AGF-091-3B9

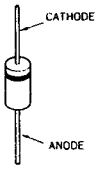


DTA114ES
DTC114ES
2SC2603-EF

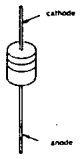
2SB1094-LK
2SD2012



RD3.6ES-B1
RD3.9ES-B1
RD5.1ES-B2
RD5.6ES-B2
RD30ES-B2



1N4148M
10E2

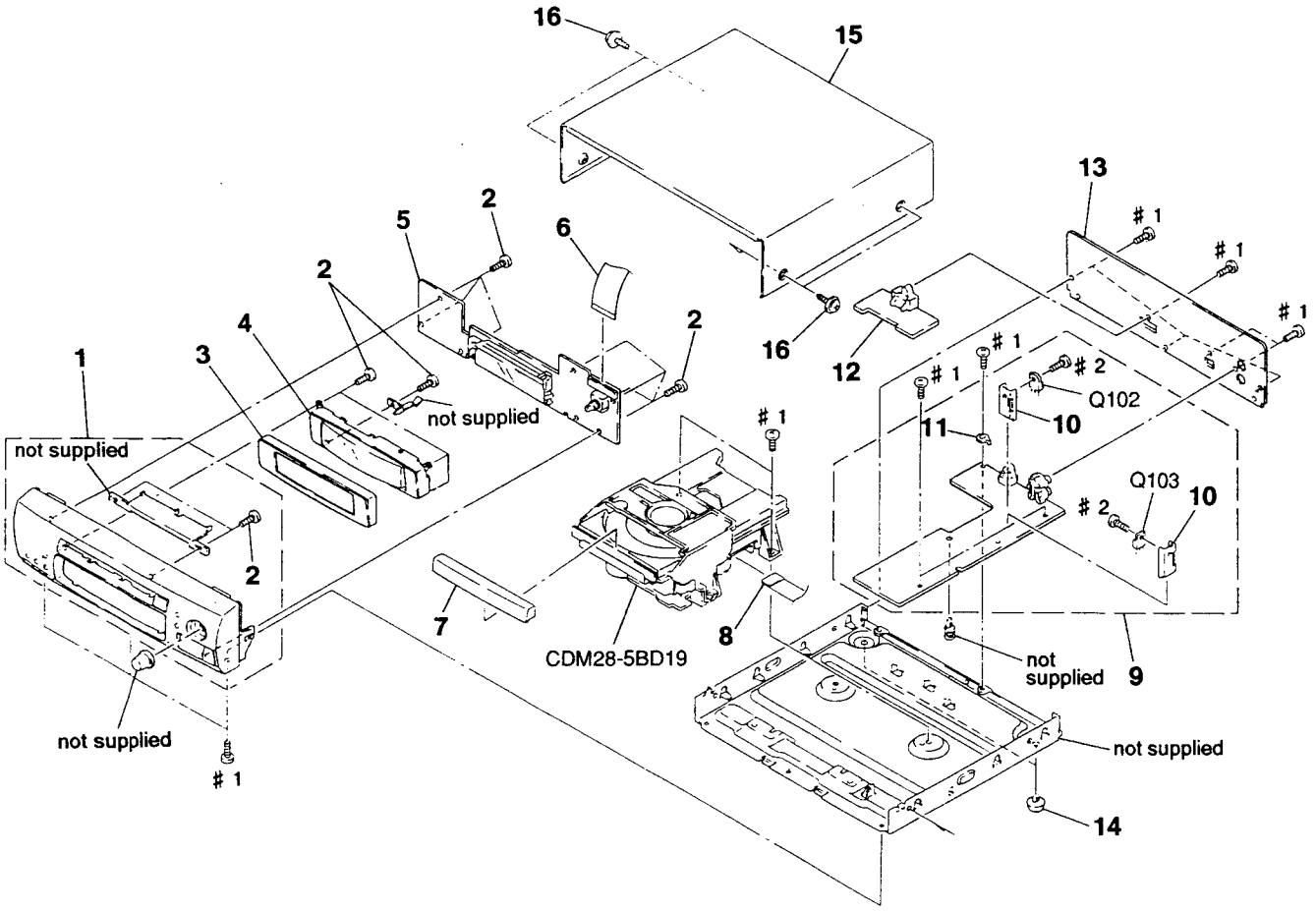


SECTION 4
EXPLODED VIEWS

NOTE:
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

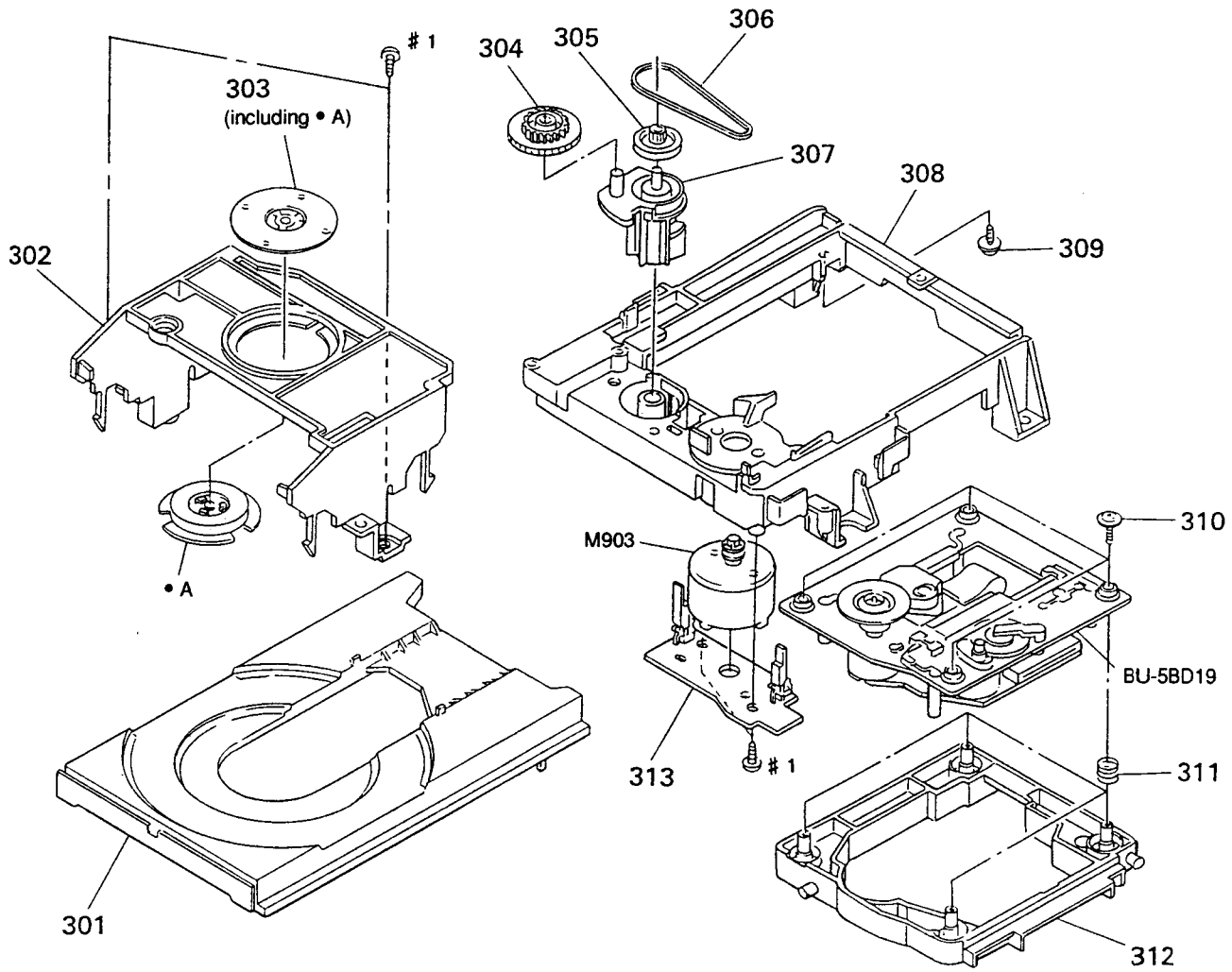
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

4-1. CHASSIS SECTION



Ref. No.	Part No.	Description	Remark
1	X-4945-433-1	PANEL ASSY, FRONT	
2	4-951-620-01	SCREW (2.6X8), +BVTP	
3	4-970-932-01	PLATE (ST/CD), ORNAMENTAL	
4	4-970-931-01	WINDOW (FL)	
* 5	A-4673-377-A	PANEL BOARD, COMPLETE	
6	1-769-620-11	WIRE (FLAT TYPE) (25 CORE)	
7	4-970-934-01	PANEL (LOADING)	
8	1-769-621-11	WIRE (FLAT TYPE) (19 CORE)	
* 9	A-4673-376-A	MAIN BOARD, COMPLETE	
* 10	3-309-144-21	HEAT SINK	
* 11	4-870-539-00	PLATE, GROUND	
* 12	1-654-816-11	CONNECTOR BOARD	
* 13	4-970-937-01	PANEL, BACK	
14	4-965-822-01	FOOT	
15	4-970-927-21	CASE	
16	3-363-099-01	SCREW (CASE 3 TP2)	
Q102	8-729-900-80	TRANSISTOR DTC114ES	
Q103	8-729-209-15	TRANSISTOR 2SD2012	

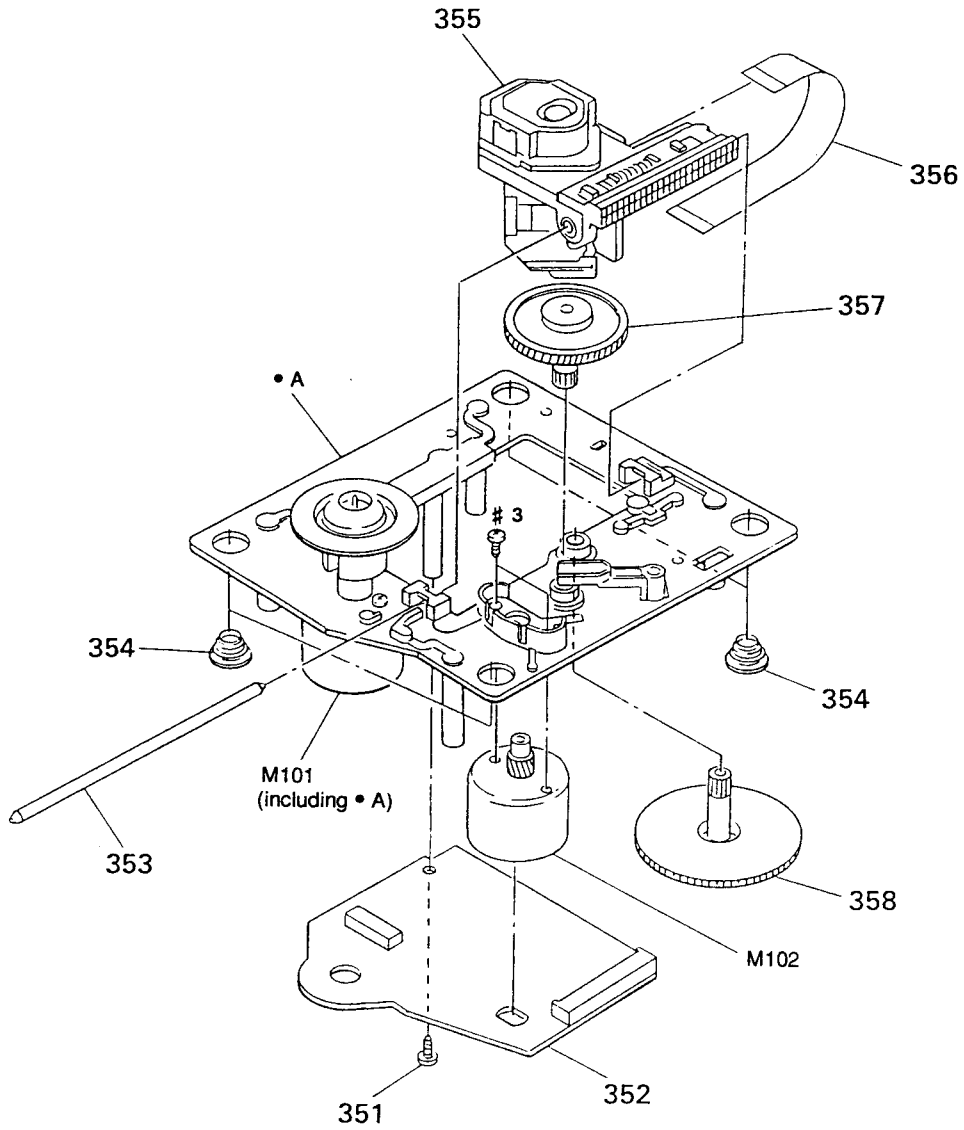
4-2. CD MECHANISM SECTION (CDM28-5BD19)



Ref. No.	Part No.	Description	Remark
* 301	4-960-836-01	TABLE, DISC	
* 302	4-960-835-01	HOLDER (M)	
303	1-452-719-11	MAGNET ASSY	
304	4-960-842-01	GEAR (P)	
305	4-960-841-01	PULLEY (S)	
306	4-927-649-01	BELT	
* 307	4-960-839-01	CAM	

Ref. No.	Part No.	Description	Remark
* 308	4-960-838-03	BASE (MD)	
* 309	4-917-583-21	BRACKET, YOKE	
310	4-933-134-01	SCREW (+PTPWH M2.6X6)	
311	4-959-996-01	SPRING (932), COMPRESSION	
* 312	4-960-834-01	HOLDER (BU)	
* 313	1-650-836-11	LOADING BOARD	
M903	A-4604-363-A	MOTOR (L) ASSY (LOADING)	

4-3. OPTICAL PICK-UP BLOCK SECTION (BU-5BD19)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
351	4-951-620-01	SCREW (2.6X8), +BVTP	
* 352	A-4673-402-A	BD BOARD, COMPLETE	
353	4-917-565-01	SHAFT, SLED	
354	4-951-940-01	INSULATOR (BU)	
⚠355	8-848-367-11	DEVICE, OPTICAL KSS-213B/K-N	
356	1-769-069-11	WIRE (FLAT TYPE) (16 CORE)	
357	4-917-567-01	GEAR (M)	
358	4-917-564-01	GEAR (P), FLATNESS	
M101	X-4917-523-4	MOTOR ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	

SECTION 5
ELECTRICAL PARTS LIST

BD

NOTE:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- -XX, -X mean standardized parts, so they may have some difference from the original one.

- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- SEMICONDUCTORS
  In each case, u: μ , for example:
  uA...: μA..., uPA...: μPA..., uPB...: μPB...,
  uPC...: μPC..., uPD...: μPD...
- CAPACITORS
  uF : μF
- COILS
  uH : μH

Ref.No.	Part No.	Description			Remark
*	A-4673-402-A	BD BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C101	1-126-607-11	ELECT CHIP	47uF	20%	4V
C102	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C103	1-164-346-11	CERAMIC CHIP	1uF		16V
C105	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C106	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
C107	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
C108	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C109	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C110	1-163-989-11	CERAMIC CHIP	0.033uF	10%	25V
C111	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C112	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C113	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
C114	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C115	1-126-607-11	ELECT CHIP	47uF	20%	4V
C116	1-163-143-00	CERAMIC CHIP	0.0012uF	5%	50V
C117	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C118	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C119	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C120	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C121	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C122	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C123	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C124	1-126-607-11	ELECT CHIP	47uF	20%	4V
C125	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C126	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C127	1-164-695-11	CERAMIC CHIP	0.0022uF	5%	50V
C128	1-163-135-00	CERAMIC CHIP	560PF	5%	50V
C129	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C130	1-164-336-11	CERAMIC CHIP	0.33uF		25V
C131	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C132	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C133	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V
C134	1-164-346-11	CERAMIC CHIP	1uF		16V
C135	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C136	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C137	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C139	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C140	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
C141	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C142	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C145	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C146	1-135-201-11	TANTALUM CHIP	10uF	20%	4V
C147	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C148	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C149	1-164-346-11	CERAMIC CHIP	1uF		16V
C153	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C154	1-163-235-11	CERAMIC CHIP	22PF	5%	50V
		< CONNECTOR >			
CNU101	1-770-014-11	CONNECTOR, FFC/FPC 16P			
CNU102	1-770-013-11	CONNECTOR, FFC/FPC 19P			
		< IC >			
IC101	8-752-069-56	IC	CXA1782BQ-T6		
IC102	8-759-291-06	IC	BA6397FP-T1		
IC103	8-752-372-94	IC	CXD2507AQ		
IC104	8-759-185-29	IC	PCM1710U-BT1		
		< TRANSISTOR >			
Q101	8-729-010-08	TRANSISTOR	MSB710-RT1		
Q102	8-729-424-08	TRANSISTOR	UN2111		
Q103	8-729-421-22	TRANSISTOR	UN2211		
		< RESISTOR >			
R102	1-216-001-00	METAL CHIP	10	5%	1/10W
R103	1-216-049-00	METAL CHIP	1K	5%	1/10W
R104	1-216-097-00	METAL CHIP	100K	5%	1/10W
R105	1-216-089-00	METAL CHIP	47K	5%	1/10W
R106	1-216-089-00	METAL CHIP	47K	5%	1/10W
R107	1-216-089-00	METAL CHIP	47K	5%	1/10W
R108	1-216-089-00	METAL CHIP	47K	5%	1/10W
R109	1-216-097-00	METAL CHIP	100K	5%	1/10W
R112	1-216-077-00	METAL CHIP	15K	5%	1/10W
R113	1-216-077-00	METAL CHIP	15K	5%	1/10W
R114	1-216-101-00	METAL CHIP	150K	5%	1/10W
R115	1-216-101-00	METAL CHIP	150K	5%	1/10W
R116	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R117	1-216-093-00	METAL CHIP	68K	5%	1/10W
R118	1-216-049-00	METAL CHIP	1K	5%	1/10W
R119	1-216-121-00	METAL CHIP	1M	5%	1/10W
R120	1-216-089-00	METAL CHIP	47K	5%	1/10W

BD CONNECTOR LOADING MAIN

Ref.No.	Part No.	Description				Remark
R121	1-216-114-00	METAL GLAZE	510K	5%	1/10W	
R122	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R123	1-216-099-00	METAL CHIP	120K	5%	1/10W	
R124	1-216-091-00	METAL CHIP	56K	5%	1/10W	
R125	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R126	1-216-063-00	METAL CHIP	3.9K	5%	1/10W	
R127	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R128	1-216-105-91	METAL GLAZE	220K	5%	1/10W	
R129	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R130	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R131	1-216-079-00	METAL CHIP	18K	5%	1/10W	
R132	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R133	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R134	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R135	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R136	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R137	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R138	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R139	1-216-033-00	METAL CHIP	220	5%	1/10W	
R140	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R141	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R142	1-216-061-00	METAL CHIP	3.3K	5%	1/10W	
R143	1-216-121-00	METAL CHIP	1M	5%	1/10W	
R144	1-216-073-00	METAL CHIP	10K	5%	1/10W	
R145	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R146	1-216-097-00	METAL CHIP	100K	5%	1/10W	
R147	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R148	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R149	1-216-049-00	METAL CHIP	1K	5%	1/10W	
R150	1-216-037-00	METAL CHIP	330	5%	1/10W	
R151	1-216-037-00	METAL CHIP	330	5%	1/10W	
R152	1-216-037-00	METAL CHIP	330	5%	1/10W	
R153	1-216-089-00	METAL CHIP	47K	5%	1/10W	
R154	1-216-065-00	METAL CHIP	4.7K	5%	1/10W	
R156	1-216-081-00	METAL CHIP	22K	5%	1/10W	
R157	1-216-069-00	METAL CHIP	6.8K	5%	1/10W	
R158	1-216-001-00	METAL CHIP	10	5%	1/10W	
		< VARIABLE RESISTOR >				
RV101	1-241-396-11	RES, ADJ, METAL GLAZE 22K				
RV102	1-241-396-11	RES, ADJ, METAL GLAZE 22K				
RV103	1-241-396-11	RES, ADJ, METAL GLAZE 22K				
		< SWITCH >				
S101	1-572-085-11	SWITCH, LEAF (LIMIT SW)				
		< VIBRATOR >				
X101	1-579-280-11	VIBRATOR, CRYSTAL (16.9344MHz)				

****

Ref.No.	Part No.	Description				Remark
*	1-654-816-11	CONNECTOR BOARD				
		**********				
		< CAPACITOR >				
C301	1-162-282-31	CERAMIC	100PF	10%	50V	
C302	1-164-159-11	CERAMIC	0.1uF		50V	
		< CONNECTOR >				
CN301	1-770-158-11	SOCKET, CONNECTOR 7P				
CN302	1-770-031-11	CONNECTOR, BOARD TO BOARD 7P				
		< COIL >				
L301	1-410-464-11	INDUCTOR	3.3uH			
L302	1-410-464-11	INDUCTOR	3.3uH			

****

*	1-650-836-11	LOADING BOARD				
		**********				
		< CONNECTOR >				
* CN291	1-568-943-11	PIN, CONNECTOR 5P				
		< SWITCH >				
S291	1-572-086-11	SWITCH, LEAF (LOAD OUT)				
S292	1-572-086-11	SWITCH, LEAF (LOAD IN)				

****

*	A-4673-376-A	MAIN BOARD, COMPLETE				
		**********				
*	3-309-144-21	HEAT SINK				
*	4-870-539-00	PLATE, GROUND				
	7-685-871-01	SCREW +BVTT 3X6 (S)				
		< CAPACITOR >				
C101	1-128-489-11	ELECT	3300uF	20%	16V	
C102	1-124-122-11	ELECT	100uF	20%	50V	
C103	1-124-122-11	ELECT	100uF	20%	50V	
C104	1-161-494-00	CERAMIC	0.022uF		25V	
C110	1-161-494-00	CERAMIC	0.022uF		25V	
C111	1-164-159-11	CERAMIC	0.1uF		50V	
C112	1-161-494-00	CERAMIC	0.022uF		25V	
C113	1-126-101-11	ELECT	100uF	20%	16V	
C115	1-124-122-11	ELECT	100uF	20%	50V	
C116	1-124-443-00	ELECT	100uF	20%	10V	
C117	1-124-122-11	ELECT	100uF	20%	50V	
C118	1-124-122-11	ELECT	100uF	20%	50V	
C120	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C121	1-124-443-00	ELECT	100uF	20%	10V	
C122	1-162-306-11	CERAMIC	0.01uF	30%	16V	

Ref.No.	Part No.	Description			Remark
C123	1-124-473-11	ELECT	1000uF	20%	10V
C124	1-162-306-11	CERAMIC	0.01uF	30%	16V
C151	1-164-159-11	CERAMIC	0.1uF		50V
C152	1-164-159-11	CERAMIC	0.1uF		50V
C153	1-164-159-11	CERAMIC	0.1uF		50V
C154	1-164-159-11	CERAMIC	0.1uF		50V
C155	1-164-159-11	CERAMIC	0.1uF		50V
C156	1-161-494-00	CERAMIC	0.022uF		25V
C157	1-162-282-31	CERAMIC	100PF	10%	50V
C158	1-162-290-31	CERAMIC	470PF	10%	50V
C159	1-162-294-31	CERAMIC	0.001uF	10%	50V
C160	1-162-294-31	CERAMIC	0.001uF	10%	50V
C161	1-162-294-31	CERAMIC	0.001uF	10%	50V
C162	1-162-294-31	CERAMIC	0.001uF	10%	50V
C201	1-130-475-00	MYLAR	0.0022uF	5%	50V
C202	1-130-475-00	MYLAR	0.0022uF	5%	50V
C203	1-124-907-11	ELECT	10uF	20%	50V
C204	1-162-290-31	CERAMIC	470PF	10%	50V
C205	1-162-306-11	CERAMIC	0.01uF	30%	16V
C206	1-124-907-11	ELECT	10uF	20%	50V
C251	1-130-475-00	MYLAR	0.0022uF	5%	50V
C252	1-130-475-00	MYLAR	0.0022uF	5%	50V
C253	1-124-907-11	ELECT	10uF	20%	50V
C254	1-162-290-31	CERAMIC	470PF	10%	50V
C255	1-162-306-11	CERAMIC	0.01uF	30%	16V
C256	1-124-907-11	ELECT	10uF	20%	50V
C281	1-162-306-11	CERAMIC	0.01uF	30%	16V
C282	1-162-306-11	CERAMIC	0.01uF	30%	16V
C283	1-162-306-11	CERAMIC	0.01uF	30%	16V
C284	1-164-159-11	CERAMIC	0.1uF		50V
C285	1-124-927-11	ELECT	4.7uF	20%	100V
		< CONNECTOR >			
* CN101	1-691-406-11	CONNECTOR, BOARD TO BOARD 7P			
CN201	1-770-167-11	CONNECTOR, FFC/FPC 19P			
* CN202	1-564-339-00	PIN, CONNECTOR 5P			
* CN203	1-568-841-11	SOCKET, CONNECTOR 25P			
		< DIODE >			
D101	8-719-200-02	DIODE	10E2		
D102	8-719-200-02	DIODE	10E2		
D105	8-719-200-02	DIODE	10E2		
D106	8-719-200-02	DIODE	10E2		
D107	8-719-109-68	DIODE	RD3.6ES-B1		
D108	8-719-109-85	DIODE	RD5.1ES-B2		
D109	8-719-109-89	DIODE	RD5.6ESB2		
D110	8-719-110-72	DIODE	RD30ESB2		
D111	8-719-200-02	DIODE	10E2		
D112	8-719-200-02	DIODE	10E2		
D281	8-719-109-71	DIODE	RD3.9ES-B1		

Ref.No.	Part No.	Description			Remark
		< IC >			
IC101	8-759-820-84	IC	L78MR05		
IC102	8-759-604-86	IC	M5F7807L		
IC201	8-759-900-72	IC	NE5532P		
IC202	8-749-923-04	IC	TOTX178 (CD DIGITAL (OPTICAL OUT))		
IC203	8-759-822-09	IC	LB1641		
		< JACK >			
J201	1-770-272-11	JACK, PIN 2P (CD (OUT))			
		< TRANSISTOR >			
Q101	8-729-900-80	TRANSISTOR	DTC114ES		
Q102	8-729-900-80	TRANSISTOR	DTC114ES		
Q103	8-729-209-15	TRANSISTOR	2SD2012		
Q104	8-729-141-83	TRANSISTOR	2SB1094-LK		
Q111	8-729-900-61	TRANSISTOR	DTA114ES		
Q112	8-729-900-61	TRANSISTOR	DTA114ES		
		< RESISTOR >			
R101	1-249-437-11	CARBON	47K	5%	1/4W
R102	1-249-413-11	CARBON	470	5%	1/4W
R103	1-249-413-11	CARBON	470	5%	1/4W
R104	1-247-807-31	CARBON	100	5%	1/4W
R107	1-249-429-11	CARBON	10K	5%	1/4W
R108	1-249-441-11	CARBON	100K	5%	1/4W
R110	1-249-421-11	CARBON	2.2K	5%	1/4W
R112	1-249-417-11	CARBON	1K	5%	1/4W
R113	1-249-417-11	CARBON	1K	5%	1/4W
R114	1-249-417-11	CARBON	1K	5%	1/4W
R116	1-260-091-11	CARBON	220	5%	1/2W
R117	1-260-091-11	CARBON	220	5%	1/2W
R118	1-260-091-11	CARBON	220	5%	1/2W
R119	1-260-091-11	CARBON	220	5%	1/2W
R120	1-260-090-11	CARBON	180	5%	1/2W
R121	1-260-090-11	CARBON	180	5%	1/2W
R130	1-249-425-11	CARBON	4.7K	5%	1/4W
R131	1-249-425-11	CARBON	4.7K	5%	1/4W
R132	1-249-425-11	CARBON	4.7K	5%	1/4W
R133	1-249-441-11	CARBON	100K	5%	1/4W
R161	1-247-807-31	CARBON	100	5%	1/4W
R162	1-247-807-31	CARBON	100	5%	1/4W
R163	1-247-807-31	CARBON	100	5%	1/4W
R201	1-249-419-11	CARBON	1.5K	5%	1/4W
R202	1-249-419-11	CARBON	1.5K	5%	1/4W
R205	1-249-441-11	CARBON	100K	5%	1/4W
R207	1-249-421-11	CARBON	2.2K	5%	1/4W
R208	1-249-429-11	CARBON	10K	5%	1/4W
R209	1-249-428-11	CARBON	8.2K	5%	1/4W
R210	1-249-441-11	CARBON	100K	5%	1/4W

MAIN PANEL

Ref. No.	Part No.	Description				Remark
R251	1-249-419-11	CARBON	1.5K	5%	1/4W	
R252	1-249-419-11	CARBON	1.5K	5%	1/4W	
R255	1-249-441-11	CARBON	100K	5%	1/4W	
R257	1-249-421-11	CARBON	2.2K	5%	1/4W	
R258	1-249-429-11	CARBON	10K	5%	1/4W	
R259	1-249-428-11	CARBON	8.2K	5%	1/4W	
R260	1-249-441-11	CARBON	100K	5%	1/4W	
**********						
*	A-4673-377-A	PANEL BOARD, COMPLETE				
		**********				
*	4-970-936-01	HOLDER (FL)				
		< CAPACITOR >				
C602	1-164-159-11	CERAMIC	0.1uF		50V	
C604	1-164-159-11	CERAMIC	0.1uF		50V	
C605	1-164-159-11	CERAMIC	0.1uF		50V	
C606	1-162-301-11	CERAMIC	0.0015uF	30%	16V	
C607	1-162-301-11	CERAMIC	0.0015uF	30%	16V	
C608	1-126-177-11	ELECT	100uF	20%	10V	
C609	1-124-916-11	ELECT	22uF	20%	63V	
C610	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C631	1-162-282-31	CERAMIC	100PF	10%	50V	
C674	1-162-290-31	CERAMIC	470PF	10%	50V	
		< CONNECTOR >				
* CN601	1-568-867-11	SOCKET, CONNECTOR 25P				
		< DIODE >				
D601	8-719-987-63	DIODE 1N4148M				
D602	8-719-987-63	DIODE 1N4148M				
D603	8-719-987-63	DIODE 1N4148M				
		< FLUORESCENT INDICATOR >				
FL601	1-517-369-11	INDICATOR TUBE, FLUORESCENT				
		< IC >				
IC601	8-759-340-60	IC uPD78044AGF-091-3B9				
		< TRANSISTOR >				
Q601	8-729-620-05	TRANSISTOR 2SC2603-EF				
Q651	8-729-620-05	TRANSISTOR 2SC2603-EF				
Q652	8-729-620-05	TRANSISTOR 2SC2603-EF				
		< RESISTOR >				
R601	1-249-425-11	CARBON	4.7K	5%	1/4W	
R602	1-249-425-11	CARBON	4.7K	5%	1/4W	
R603	1-249-417-11	CARBON	1K	5%	1/4W	
R604	1-249-417-11	CARBON	1K	5%	1/4W	

Ref. No.	Part No.	Description				Remark
R605	1-249-429-11	CARBON	10K	5%	1/4W	
R606	1-249-429-11	CARBON	10K	5%	1/4W	
R607	1-249-429-11	CARBON	10K	5%	1/4W	
R608	1-249-393-11	CARBON	10	5%	1/4W	
R609	1-249-425-11	CARBON	4.7K	5%	1/4W	
R610	1-249-429-11	CARBON	10K	5%	1/4W	
R611	1-249-429-11	CARBON	10K	5%	1/4W	
R612	1-249-413-11	CARBON	470	5%	1/4W	
R613	1-249-415-11	CARBON	680	5%	1/4W	
R614	1-249-417-11	CARBON	1K	5%	1/4W	
R615	1-249-413-11	CARBON	470	5%	1/4W	
R616	1-249-415-11	CARBON	680	5%	1/4W	
R617	1-249-413-11	CARBON	470	5%	1/4W	
R618	1-249-415-11	CARBON	680	5%	1/4W	
R619	1-249-417-11	CARBON	1K	5%	1/4W	
R620	1-249-423-11	CARBON	3.3K	5%	1/4W	
R621	1-249-423-11	CARBON	3.3K	5%	1/4W	
R622	1-249-423-11	CARBON	3.3K	5%	1/4W	
R624	1-249-425-11	CARBON	4.7K	5%	1/4W	
R625	1-249-425-11	CARBON	4.7K	5%	1/4W	
R626	1-247-807-31	CARBON	100	5%	1/4W	
R627	1-247-807-31	CARBON	100	5%	1/4W	
R628	1-247-807-31	CARBON	100	5%	1/4W	
R629	1-247-807-31	CARBON	100	5%	1/4W	
R631	1-249-417-11	CARBON	1K	5%	1/4W	
R651	1-249-441-11	CARBON	100K	5%	1/4W	
R652	1-249-441-11	CARBON	100K	5%	1/4W	
R653	1-249-441-11	CARBON	100K	5%	1/4W	
R654	1-249-441-11	CARBON	100K	5%	1/4W	
R655	1-249-441-11	CARBON	100K	5%	1/4W	
R656	1-249-441-11	CARBON	100K	5%	1/4W	
R657	1-249-441-11	CARBON	100K	5%	1/4W	
R658	1-249-441-11	CARBON	100K	5%	1/4W	
R659	1-249-441-11	CARBON	100K	5%	1/4W	
R660	1-249-441-11	CARBON	100K	5%	1/4W	
R661	1-249-441-11	CARBON	100K	5%	1/4W	
R662	1-249-441-11	CARBON	100K	5%	1/4W	
R663	1-249-441-11	CARBON	100K	5%	1/4W	
R664	1-249-441-11	CARBON	100K	5%	1/4W	
R665	1-249-441-11	CARBON	100K	5%	1/4W	
R666	1-249-441-11	CARBON	100K	5%	1/4W	
R667	1-249-441-11	CARBON	100K	5%	1/4W	
R668	1-249-441-11	CARBON	100K	5%	1/4W	
R669	1-249-441-11	CARBON	100K	5%	1/4W	
R670	1-249-441-11	CARBON	100K	5%	1/4W	
R671	1-249-441-11	CARBON	100K	5%	1/4W	
R672	1-249-441-11	CARBON	100K	5%	1/4W	
R673	1-249-441-11	CARBON	100K	5%	1/4W	
R674	1-249-441-11	CARBON	100K	5%	1/4W	
R675	1-249-429-11	CARBON	10K	5%	1/4W	

Ref. No.	Part No.	Description	Remark
R676	1-249-441-11	CARBON 100K 5% 1/4W	
R677	1-249-429-11	CARBON 10K 5% 1/4W	
		< SWITCH >	
S601	1-554-303-21	SWITCH, TACTILE (EDIT)	
S602	1-554-303-21	SWITCH, TACTILE (CHECK)	
S603	1-554-303-21	SWITCH, TACTILE (CLEAR)	
S604	1-554-303-21	SWITCH, TACTILE (▶▶)	
S605	1-554-303-21	SWITCH, TACTILE (TIME)	
S606	1-554-303-21	SWITCH, TACTILE (REPEAT)	
S607	1-554-303-21	SWITCH, TACTILE (PLAY MODE)	
S608	1-554-303-21	SWITCH, TACTILE (▷II)	
S609	1-554-303-21	SWITCH, TACTILE (□)	
S610	1-554-303-21	SWITCH, TACTILE (OPEN/CLOSE)	
S611	1-554-303-21	SWITCH, TACTILE (◀◀)	
S612	1-467-938-11	ENCODER, ROTARY (I◀◀ AMS ▶▶I)	
		< VIBRATOR >	
X601	1-579-233-11	VIBRATOR, CERAMIC (5MHz)	
**********			
		MISCELLANEOUS	
		**********	
6	1-769-620-11	WIRE (FLAT TYPE) (25 CORE)	
8	1-769-621-11	WIRE (FLAT TYPE) (19 CORE)	
303	1-452-719-11	MAGNET ASSY	
⚠355	8-848-367-11	DEVICE, OPTICAL KSS-213B/K-N	
356	1-769-069-11	WIRE (FLAT TYPE) (16 CORE)	
M101	X-4917-523-4	MOTOR ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	
M903	A-4604-363-A	MOTOR (L) ASSY (LOADING)	
Q102	8-729-900-80	TRANSISTOR DTC114ES	
Q103	8-729-209-15	TRANSISTOR 2SD2012	
**********			
		**********	
		HARDWARE LIST	
		**********	
#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#2	7-685-871-01	SCREW +BVTT 3X6 (S)	
#3	7-621-255-15	SCREW +P 2X3	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

English
95B0986-1

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Quality Engineering Dept.

Sony Corporation
Consumer A&V Products Company
Home A&V Products Div.

9-959-981-11

CDP-EX10

SONY
SERVICE MANUAL

AEP Model
UK Model
E Model
Australian Model
Tourist Model

CORRECTION-1

Correct your service manual as shown below.

☛ : **indicates corrected portion.**

Page	INCORRECT			CORRECT	
	Ref.No.	Part No.	Description	Part No.	Description
20	3	4-970-932-01	PLATE (ST/CD), ORNAMENTAL	4-970-932-11 ☛	PLATE (ST/CD), ORNAMENTAL

(ECN-TC500170)

Sony Corporation
Consumer A&V Products Company
Home A&V Products Div.

English
95F0982-1

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CDP-EX10

SONY

SERVICE MANUAL

AEP Model
UK Model
E Model
Australian Model
Tourist Model

SUPPLEMENT-1

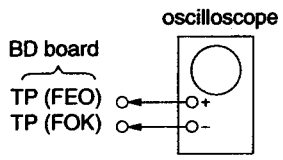
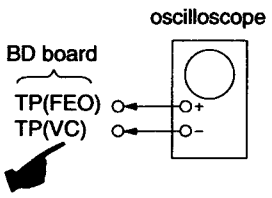
File this supplement with the service manual.

Subject : 1. CORRECTION
2. S CURVE CHECK SPECIFICATION CHANGED
3. PARTS CHANGED & PARTS SUPPLY CLASSIFICATION CHANGED

(SPM-96036)

1. CORRECTION

• Correct your service manual as shown below.
☛ : indicates corrected portion.

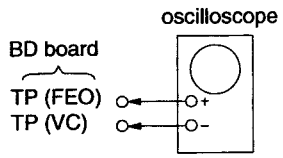
Page	INCORRECT	CORRECT
4	**S Curve Check** 	**S Curve Check** 

2. S CURVE CHECK SPECIFICATION CHANGED

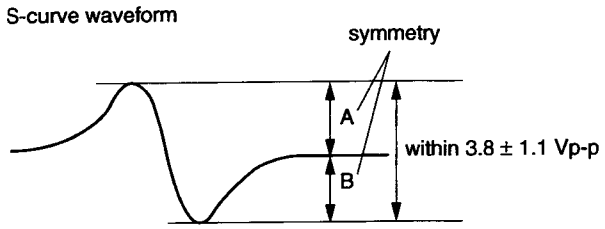
The value of mounted parts of the BD board has changed due to improvements.
Following this change, the S Curve check values have also changed as follows.
☛ : indicates changed portion

Ref No.	FORMER					NEW				
	Part No.	Description			Remark	Part No.	Description			Remark
	*** BD BOARD, COMPLETE ***					*** BD BOARD, COMPLETE ***				
C116	1-163-143-00	CERAMIC CHIP	0.0012µF	5%	50V	1-163-016-00	CERAMIC CHIP	0.0039µF	10%	50V
C118	1-163-038-91	CERAMIC CHIP	0.1µF		25V	1-107-823-11	CERAMIC CHIP	0.47µF	10%	16V
R105	1-216-089-00	METAL CHIP	47K	5%	1/10W	1-216-093-00	METAL CHIP	68K	5%	1/10W
R106	1-216-089-00	METAL CHIP	47K	5%	1/10W	1-216-093-00	METAL CHIP	68K	5%	1/10W
R107	1-216-089-00	METAL CHIP	47K	5%	1/10W	1-216-093-00	METAL CHIP	68K	5%	1/10W
R108	1-216-089-00	METAL CHIP	47K	5%	1/10W	1-216-093-00	METAL CHIP	68K	5%	1/10W
R112	1-216-077-00	METAL CHIP	15K	5%	1/10W	1-216-083-00	METAL CHIP	27K	5%	1/10W
R113	1-216-077-00	METAL CHIP	15K	5%	1/10W	1-216-083-00	METAL CHIP	27K	5%	1/10W
R117	1-216-093-00	METAL CHIP	68K	5%	1/10W	1-216-069-00	METAL CHIP	6.8K	5%	1/10W
R119	1-216-121-00	METAL CHIP	1M	5%	1/10W	1-216-089-91	METAL CHIP	47K	5%	1/10W
R153	1-216-089-00	METAL CHIP	47K	5%	1/10W	1-216-082-00	METAL CHIP	24K	5%	1/10W
R156	1-216-081-00	METAL CHIP	22K	5%	1/10W	1-216-085-00	METAL CHIP	33K	5%	1/10W

S Curve Check — Page 4 —



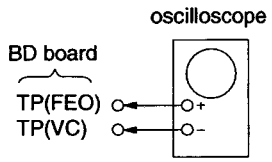
Procedure :
1. Connect oscilloscope to test point TP (FEO).
2. Connect between test point TP (FOK) and GND by lead wire.
3. Turn Power switch on.
4. Put disc (YEDS-18) in and turned Power switch on again and actuate the focus search. (actuate the focus search when disc table is moving in and out.)
5. Check the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 3.8±1.1 Vp-p.



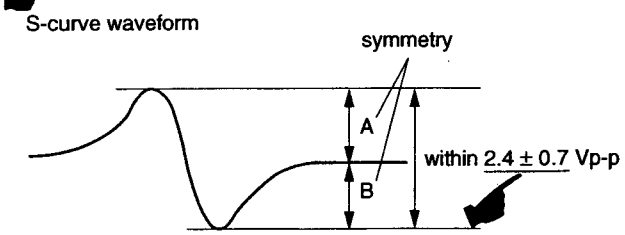
6. After check, remove the lead wire connected in step 2.

Note : • Try to measure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
• Take sweep time as long as possible and light up the brightness to obtain best waveform.

S Curve Check — Page 4 —



Procedure :
1. Connect oscilloscope to test point TP (FEO).
2. Connect between test point TP (FOK) and GND by lead wire.
3. Turn Power switch on.
4. Put disc (YEDS-18) in and turned Power switch on again and actuate the focus search. (actuate the focus search when disc table is moving in and out.)
5. Check the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 2.4±0.7 Vp-p.



6. After check, remove the lead wire connected in step 2.

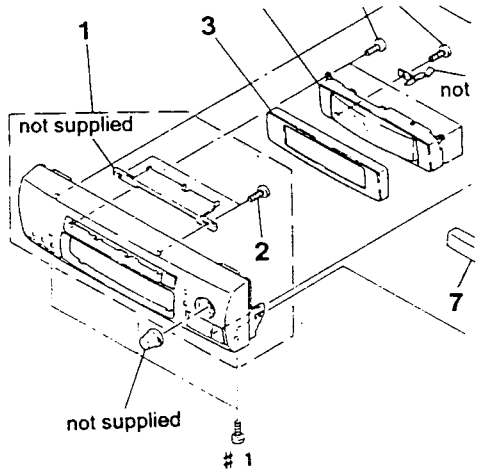
Note : • Try to measure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
• Take sweep time as long as possible and light up the brightness to obtain best waveform.

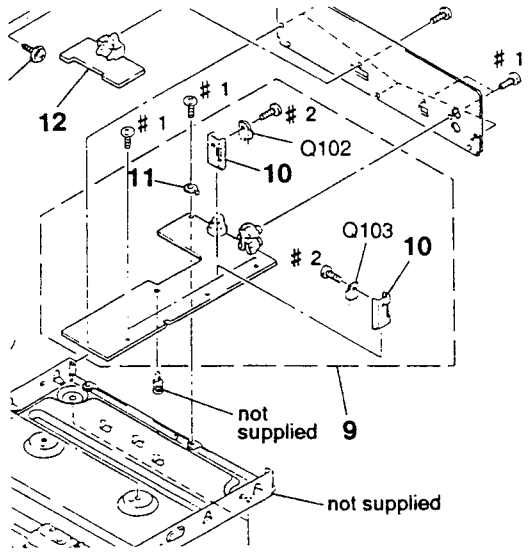
3. PARTS CHANGED & PARTS SUPPLY CLASSIFICATION CHANGED

• Revise your service manual as shown below due to parts supply classification has been changed.

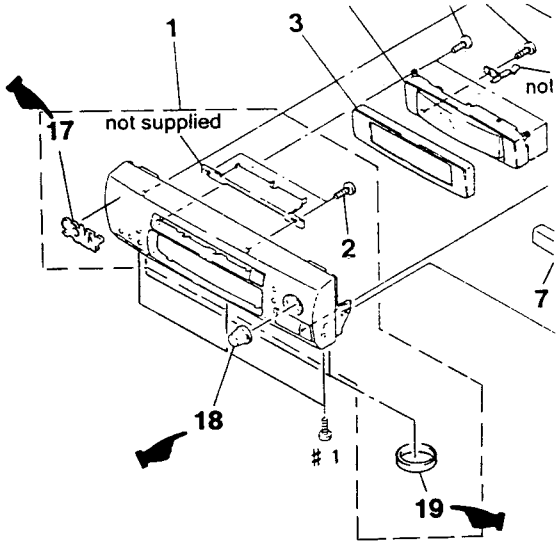
☛ : indicates changed portion.

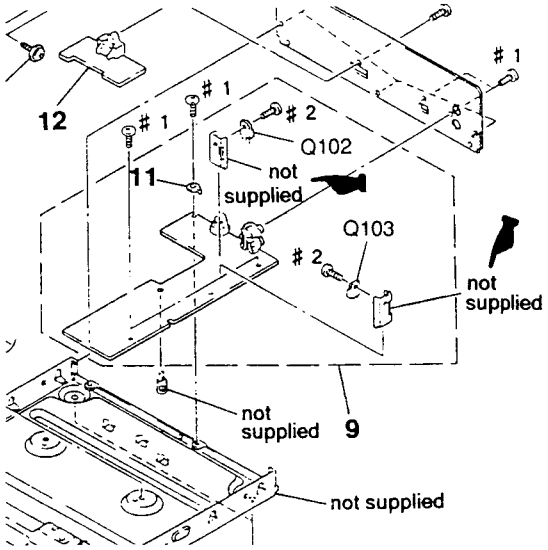
Page	CURRENT			Remark
20	Ref. No.	Part No.	Description	
			*** EXPLODED VIEWS ***	
	* 10	3-309-144-21	HEAT SINK	
	* 11	4-870-539-00	PLATE, GROUND	
			not supplied	
			not supplied	
			not supplied	





REVISED				Remark
Ref. No.	Part No.	Description		
		*** EXPLODED VIEWS ***		
			Not supplied	
* 11	4-870-539-11	PLATE, GROUND		
17	4-962-708-01	EMBLEM (4-A), SONY		
18	4-970-933-01	KNOB (JOG)		
19	4-972-656-01	FOOT (ORNAMENT)		





English
96J0976-1

9-959-981-81

Sony Corporation
Home A&V Products Company

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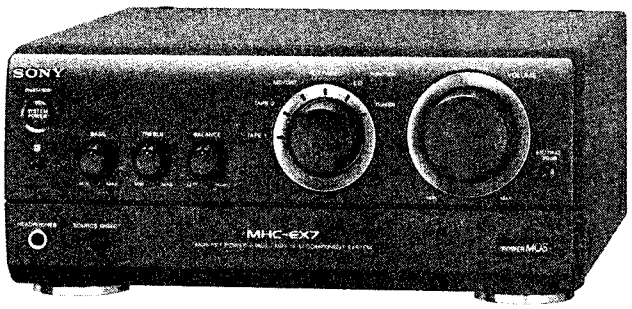
Published by Service and Safety
Engineering Dept. (Shibaura)

SONY-07606

TA-EX7

SERVICE MANUAL

AEP Model
UK Model



This set is the amplifier section in MHC-EX7.

SPECIFICATIONS

Integrated stereo amplifier

60 W + 60 W (6 ohms, at 1 kHz, DIN)
Continuous RMS power output
70 W + 70 W (6 ohms, at 1 kHz, 5% THD)
Music power output
140 W + 140 W (6 ohms at 1 kHz, 10% THD)

Inputs
CD (phono jacks):
MD/DAT (phono jacks):
sensitivity 450 mV, impedance 47 kilohms
TUNER (phono jacks):
AUX/VIDEO (phono jacks):
TAPE1 (phono jacks):
TAPE2 (phono jacks):
sensitivity 250 mV, impedance 47 kilohms

Outputs
MD/DAT (phono jacks):
voltage 250 mV
impedance 1 kilohm
HEADPHONES (stereo phone jack):
accepts headphones of 8 ohms or more
TAPE1 (phono jacks):
TAPE2 (phono jacks):
voltage 250mV
impedance 1 kilohm

Dimensions
Approx. 280 x 125 x 315 mm (w/h/d)
(11 1/8 x 5 x 12 1/2 inches)
Mass Approx. 6.5 kg
(14 lb 6 oz)

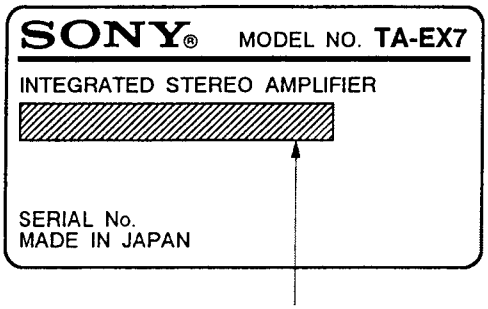
MICROFILM

INTEGRATED STEREO AMPLIFIER

SONY®

MODEL IDENTIFICATION

– Model Number Portion –



AEP Model: AC 220 – 230 V ~50/60 Hz 170 W
UK Model: AC 220 – 230 V ~50 Hz
German, Italian Model: AC 220 – 230 V ~50 Hz 170 W

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

TABLE OF CONTENTS

Section	*Title*	*Page*
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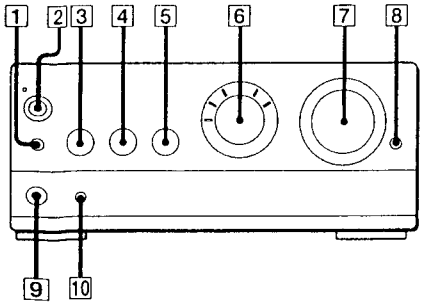
4.	**EXPLODED VIEWS**	17
5.	**ELECTRICAL PARTS LIST**	19

SECTION 1
GENERAL

This section is extracted from instruction manual.



1 Remote sensor
2 SYSTEM POWER switch and ON/STANDBY indicator (7)
The indicator remains lit as long as the AC power cord is connected to a wall outlet.
3 BASS control (20)
4 TREBLE control (20)
5 BALANCE control (20)
6 FUNCTION control* (19, 23)
TAPE 1 (23)
TAPE 2 (23)
MD/DAT (23)
AUX/VIDEO (24)
CD (15)
TUNER (19)
7 VOLUME control (5, 7, 20)
8 MUTING button* (20)
9 HEADPHONES jack (20, 23)
10 SOURCE DIRECT button* (20)

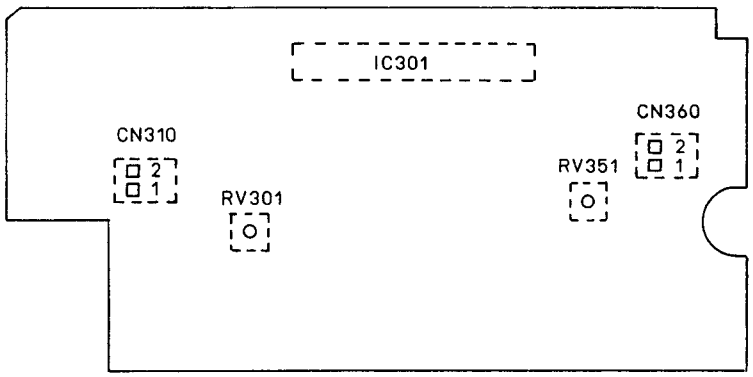
SECTION 2
ELECTRICAL ADJUSTMENT

Idling Current Adjustment

1. Select the source voltage 230 V, and place the set power supply in standby status.
2. Connect a digital voltmeter to the CN310 and CN360 on the POWER AMPLIFIER board. (1P: − side, 2P: +side)
3. Rotate fully counterclockwise the RV301 and RV351 on the POWER AMPLIFIER board. (from pattern side).
4. Turn the set power supply on. (Press the SYSTEM POWER switch)
5. Adjust the RV301 (from pattern side) so that the voltmeter connected to the CN310 indicates 8.0 ± 0.1 mV.
   * Adjustment should be completed within 5 seconds after the power on.
6. Adjust the RV351 (from pattern side) so that the voltmeter connected to the CN360 indicates 8.5 ± 0.1 mV.
   * Adjustment should be completed within 5 seconds after the adjustment of RV301.
7. The voltage will be stabillized about 6 minutes after the adjustment of RV351. At this time, confirm that the voltmeter reading is 11 to 13 mV.

Adjustment Location:

− POWER AMPLIFIER BOARD − **(Conductor side)**



SECTION 3
DIAGRAMS

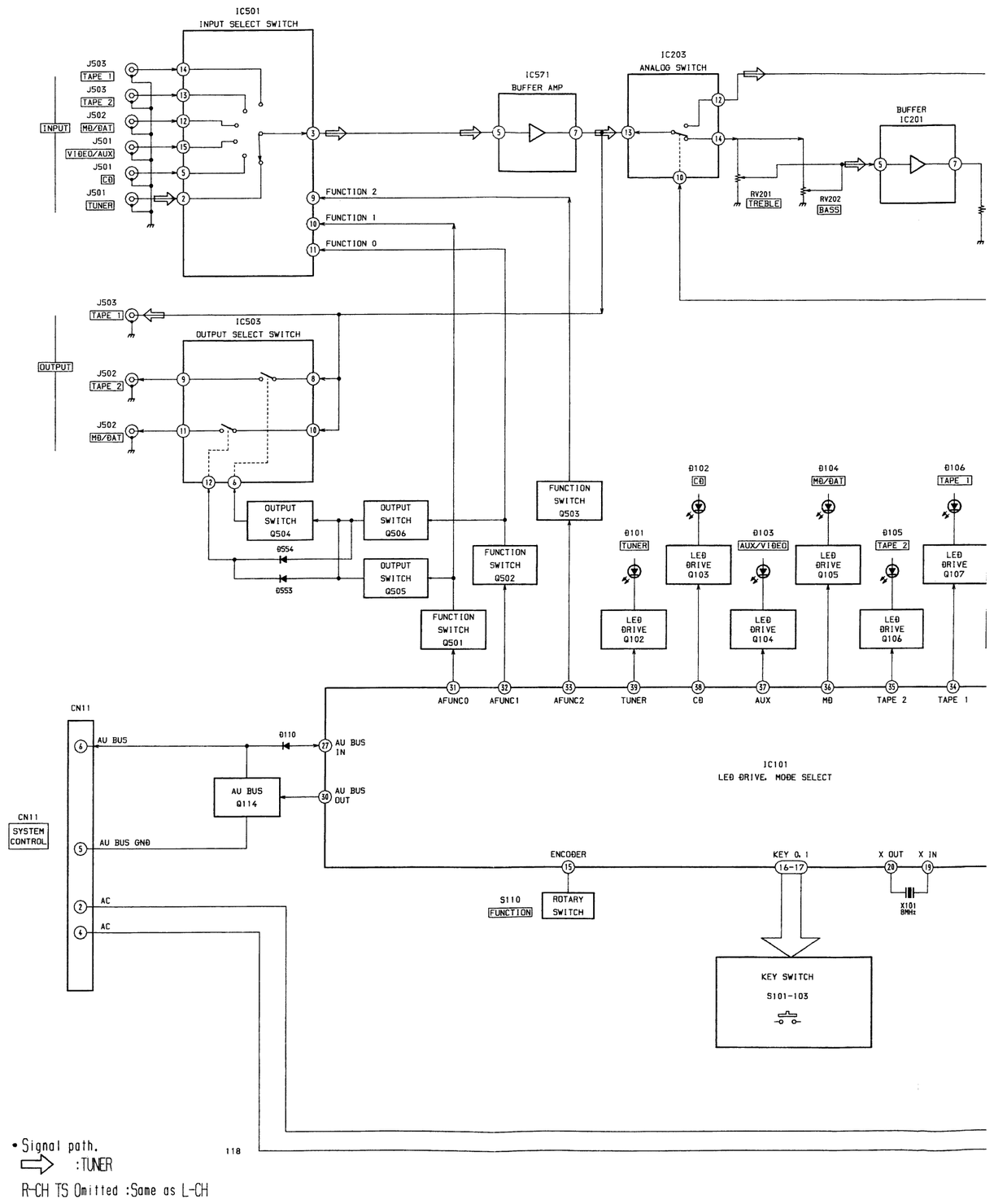
3-1. IC PIN FUNCTION DESCRIPTION

MAIN BOARD IC101 M37471M2-281SP (Key Control, LED Drive)

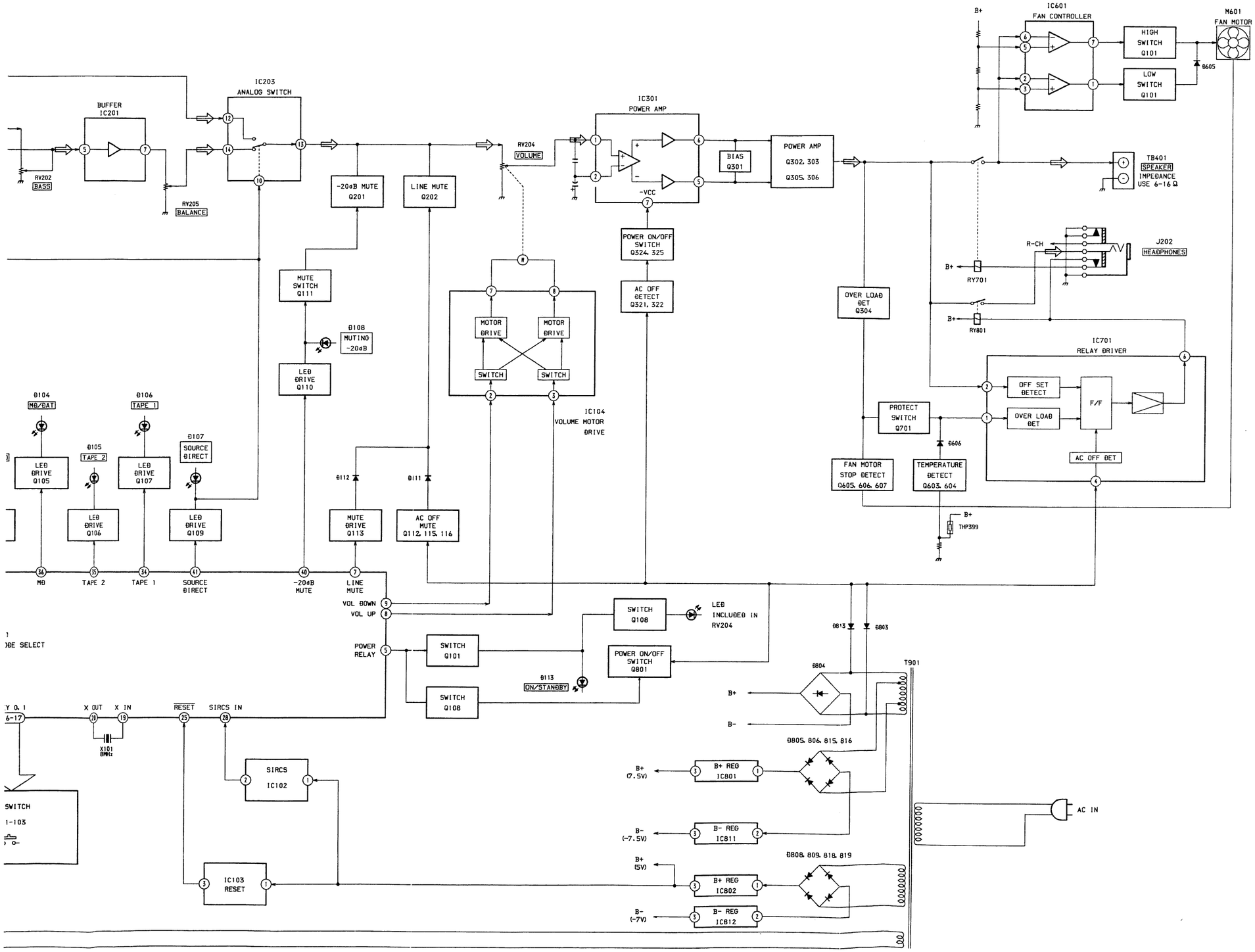
Pin No.	Pin Name	I/O	Function
1	—	—	Not used
2	—	—	
3	—	—	
4	—	—	
5	POWER RELAY	O	Power relay control output
6	SP RELAY	I	Not used
7	LINE MUTE	O	Line mute control output
8	VOL UP	O	Volume up output
9	VOL DOWN	O	Volume down output
10	—	—	Not used
11	—	—	
12	—	—	
13	—	—	
14	—	—	
15	ENCODER	I	Rotary encoder input
16	KEY 1	I	Key line 1 input
17	KEY 0	I	Key line 0 input
18	V REF	I	Reference voltage input for A/D converter
19	X IN	I	Connecting pins of the ceramic oscillator
20	X OUT	O	
21	VSS	—	Ground
22	VCC	—	+5 V
23	MODEL	I	"H" E model "L" except E model
24	—	I	Not used
25	$\overline{\text{RESET}}$	I	System reset input
26	—	I	Not used
27	AU BUS IN	I	AU BUS input
28	SIRCS IN	I	SIRCS input
29	—	I	Not used
30	AU BUS OUT	O	AU BUS output

Pin No.	Pin Name	I/O	Function
31	AFUNC 0	O	Function control output
32	AFUNC 1	O	
33	AFUNC 2	O	
34	TAPE 1	O	Function TAPE 1 output
35	TAPE 2	O	Function TAPE 2 output
36	MD	O	Function MD/DAT output
37	AUX	O	Function AUX/VIDEO output
38	CD	O	Function CD output
39	TUNER	O	Function TUNER output
40	– 20dB MUTE	O	– 20dB MUTE control output
41	SOURCE DIRECT	O	SOURCE DIRECT output
42	—	I	Not used

3-2. BLOCK DIAGRAM



• Signal path.
⇨ :TUNER
R-CH TS Omitted :Same as L-CH


IC203
ANALOG SWITCH
BUFFER
IC201
RV202
BASS
RV205
BALANCE
-20dB MUTE
Q201
LINE MUTE
Q202
RV204
VOLUME
IC301
POWER AMP
BIAS
Q301
POWER AMP
Q302, 303
Q305, 306
-VCC
POWER ON/OFF
SWITCH
Q324, 325
AC OFF
DETECT
Q321, 322
IC601
FAN CONTROLLER
HIGH
SWITCH
Q101
LOW
SWITCH
Q101
M601
FAN MOTOR
D605
TB401
SPEAKER
IMPEDANCE
USE 6-16Ω
J202
HEADPHONES
R-CH
RY701
RY801
OVER LOAD
DET
Q304
IC701
RELAY DRIVER
OFF SET
DETECT
OVER LOAD
DET
F/F
AC OFF DET
PROTECT
SWITCH
Q701
D606
FAN MOTOR
STOP DETECT
Q605, 606, 607
TEMPERATURE
DETECT
Q603, 604
THP399
MUTE
SWITCH
Q111
D108
MUTING
-20dB
LED
DRIVE
Q110
MOTOR
DRIVE
MOTOR
DRIVE
SWITCH
SWITCH
IC104
VOLUME MOTOR
DRIVE
D104
MD/DAT
D106
TAPE 1
D105
TAPE 2
D107
SOURCE
DIRECT
LED
DRIVE
Q105
LED
DRIVE
Q107
LED
DRIVE
Q106
LED
DRIVE
Q109
D112
D111
MUTE
DRIVE
Q113
AC OFF
MUTE
Q112, 115, 116
36 MD
35 TAPE 2
34 TAPE 1
41 SOURCE DIRECT
40 -20dB MUTE
7 LINE MUTE
VOL DOWN 9
VOL UP 8
POWER RELAY 5
SWITCH
Q101
SWITCH
Q108
SWITCH
Q108
LED
INCLUDED IN
RV204
D113
ON/STANDBY
POWER ON/OFF
SWITCH
Q801
D813
D803
D804
T901
B+
B-
D805, 806, 815, 816
B+
(7.5V)
B+ REG
IC801
B-
(-7.5V)
B- REG
IC811
D808, 809, 818, 819
B+
(5V)
B+ REG
IC802
B-
(-7V)
B- REG
IC812
AC IN
SIRCS
IC102
IC103
RESET
X OUT
X IN
RESET
SIRCS IN
X101
8MHz

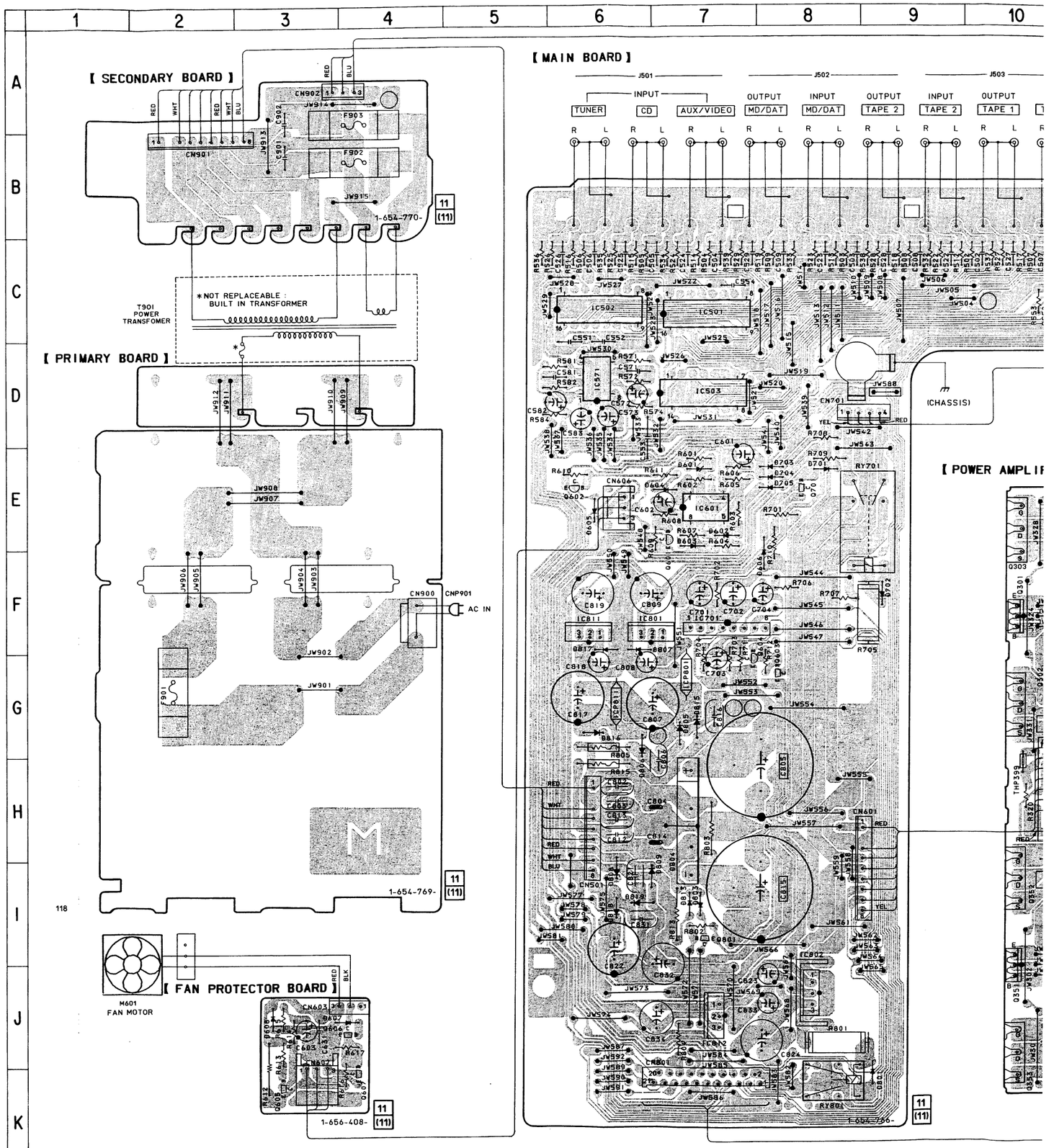
3-3. PRINTED WIRING BOARDS

- **Semiconductor Location**

Ref. No.	Location	Ref. No.	Location
D101	G-17	IC571	D-6
D102	G-17	IC601	E-7
D103	G-18	IC701	F-7
D104	G-18	IC801	F-6
D105	G-18	IC802	J-8
D106	G-19	IC811	F-6
D107	I-22	IC812	J-7
D108	H-13		
D110	I-17	Q101	G-23
D111	J-14	Q102	G-17
D112	I-14	Q103	G-17
D113	F-24	Q104	G-17
D301	F-11	Q105	H-17
D302	E-12	Q106	H-17
D351	I-11	Q107	H-17
D352	K-12	Q108	F-17
D551	C-12	Q109	J-19
D552	C-12	Q110	I-13
D553	C-12	Q111	H-13
D554	C-11	Q112	J-14
D555	C-11	Q113	I-14
D601	E-7	Q114	I-18
D602	E-7	Q115	J-14
D603	E-7	Q116	J-14
D604	E-7	Q117	G-23
D605	E-6	Q201	I-15
D606	F-8	Q202	I-14
D607	J-4	Q251	H-15
D608	J-3	Q252	H-15
D701	E-8	Q301	F-10
D702	F-9	Q302	G-10
D703	E-8	Q303	E-10
D704	E-8	Q304	E-12
D705	E-8	Q305	G-11
D801	K-9	Q306	E-11
D803	I-7	Q321	E-12
D804	H-7	Q322	F-12
D805	G-7	Q324	E-12
D806	G-6	Q325	G-12
D807	F-6	Q351	J-10
D808	I-6	Q352	I-10
D809	I-6	Q353	J-10
D813	I-7	Q354	K-12
D815	G-7	Q355	I-11
D816	G-6	Q356	J-11
D817	F-6	Q501	C-11
D818	I-6	Q502	C-11
D819	I-6	Q503	C-11
		Q504	C-11
IC101	G-20	Q505	C-11
IC102	H-23	Q506	C-11
IC103	G-22	Q601	E-7
IC104	F-16	Q602	E-6
IC201	I-20	Q603	G-8
IC202	H-19	Q604	G-7
IC203	I-19	Q605	K-3
IC301	H-12	Q606	J-4
IC501	C-7	Q607	K-4
IC502	C-6	Q701	E-8
IC503	D-7	Q801	I-7

Note:

- ○——— : parts extracted from the component side.
- ▒▒▒ : Pattern of the side which is seen.
- Abbreviation
  G : Germany
  IT : Italian

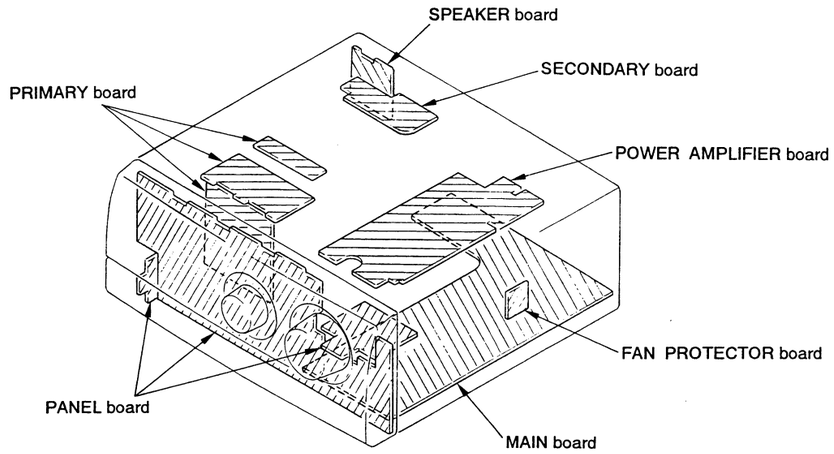


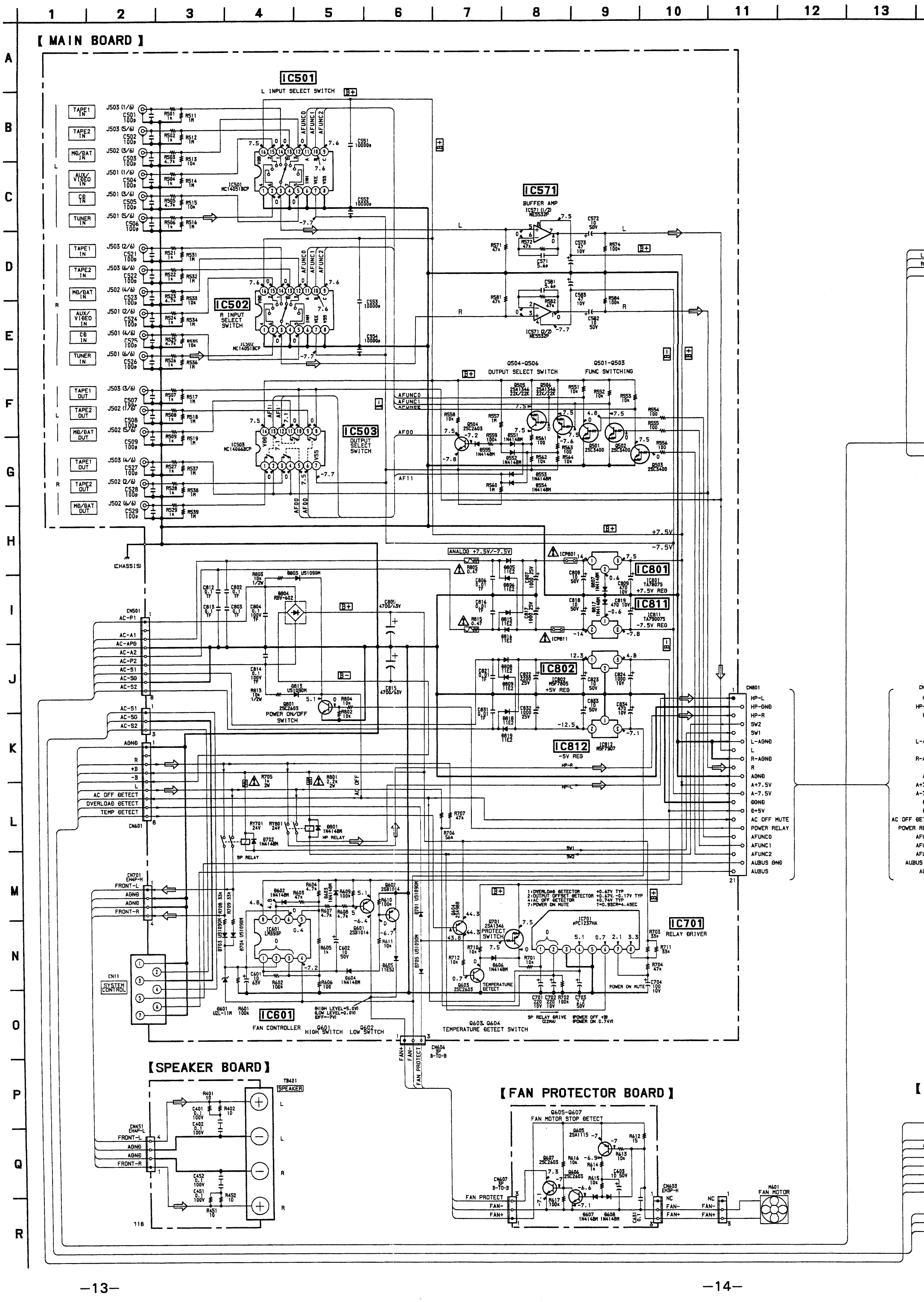
【 SPEAKER BOARD 】

【 POWER AMPLIFIER BOARD 】

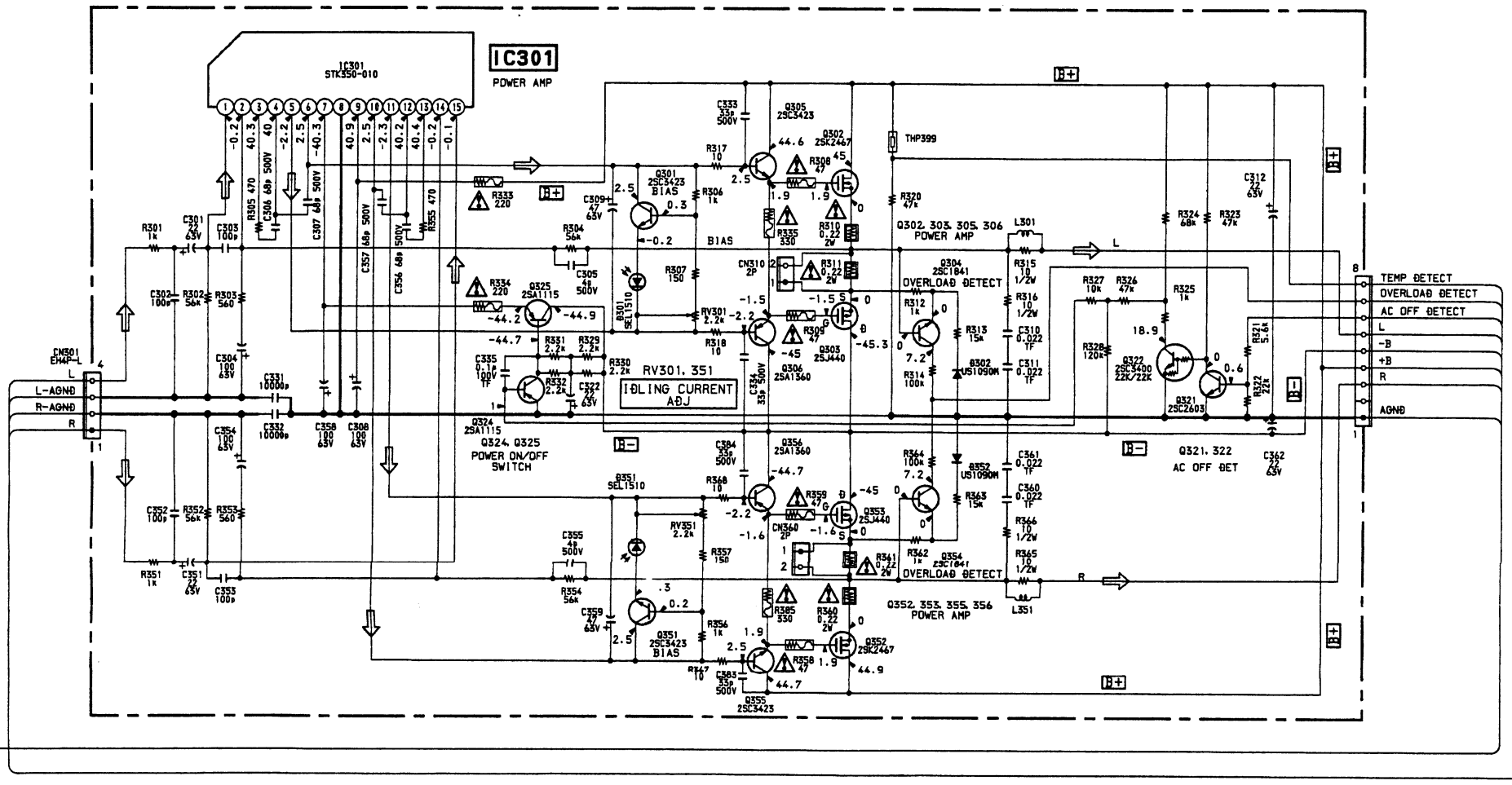
【 PANEL BOARD 】

• **Circuit Boards Location**

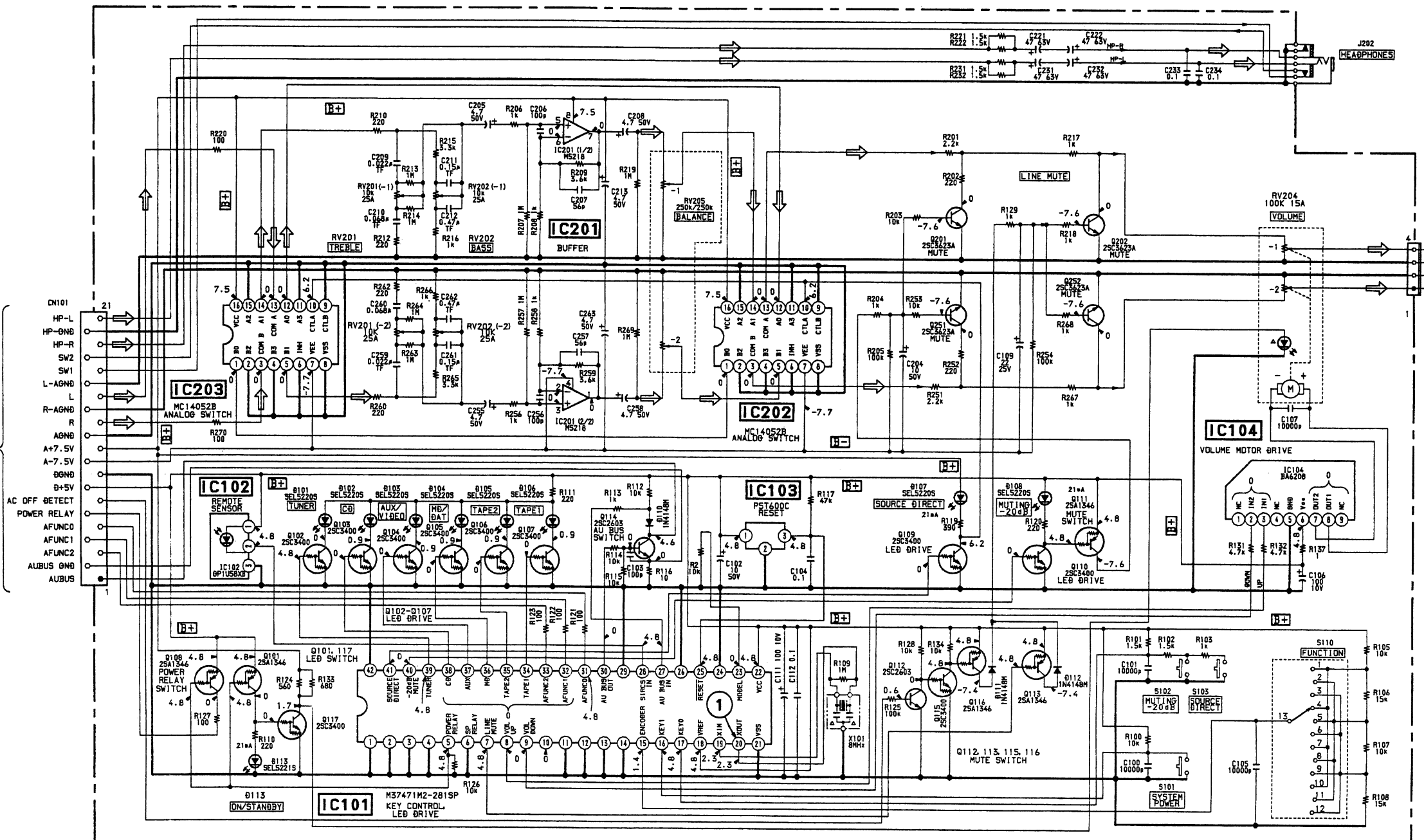



【 MAIN BOARD 】
IC501
L INPUT SELECT SWITCH
IC501 MC14051BCP
IC502
R INPUT SELECT SWITCH
IC502 MC14051BCP
IC503
OUTPUT SELECT SWITCH
IC503 MC14066BCP
IC571
BUFFER AMP
IC571 (1/2) NE5532P
IC571 (2/2) NE5532P
Q504-Q506
OUTPUT SELECT SWITCH
Q501-Q503
FUNC SWITCHING
TAPE1 IN
TAPE2 IN
MD/BAT IN
AUX/ VIDEO IN
CD IN
TUNER IN
TAPE1 OUT
TAPE2 OUT
MD/BAT OUT
(CHASSIS)
CN501
AC-P1
AC-A1
AC-APG
AC-A2
AC-P2
AC-S1
AC-SG
AC-S2
CN601
AGND
R
+B
-B
L
AC OFF DETECT
OVERLOAD DETECT
TEMP DETECT
CN701 EH4P-H
FRONT-L
AGND
AGND
FRONT-R
CN11
SYSTEM CONTROL
IC601
FAN CONTROLLER
Q601 HIGH SWITCH
Q602 LOW SWITCH
Q603, Q604
TEMPERATURE DETECT SWITCH
POWER ON/OFF SWITCH
IC801
IC801 TA78075
+7.5V REG
IC811
IC811 TA79007S
-7.5V REG
IC802
IC802 M5F7805
+5V REG
IC812
IC812 M5F7907
-5V REG
IC701
μPC1237HA
RELAY DRIVER
PROTECT SWITCH
TEMPERATURE DETECT
POWER ON MUTE
SP RELAY
HP RELAY
CN801
HP-L
HP-GND
HP-R
SW2
SW1
L-AGND
L
R-AGND
R
AGND
A+7.5V
A-7.5V
DGND
D+5V
AC OFF MUTE
POWER RELAY
AFUNC0
AFUNC1
AFUNC2
AUBUS GND
AUBUS
CN101
CN603 EH3P-H
NC
FAN-
FAN+
M601
FAN MOTOR
CN606 3P B-TO-B
FAN+
FAN-
FAN PROTECT
【SPEAKER BOARD】
TB401
SPEAKER
CN451 EH4P-L
【FAN PROTECTOR BOARD】
Q605-Q607
FAN MOTOR STOP DETECT
CN607 3P B-TO-B

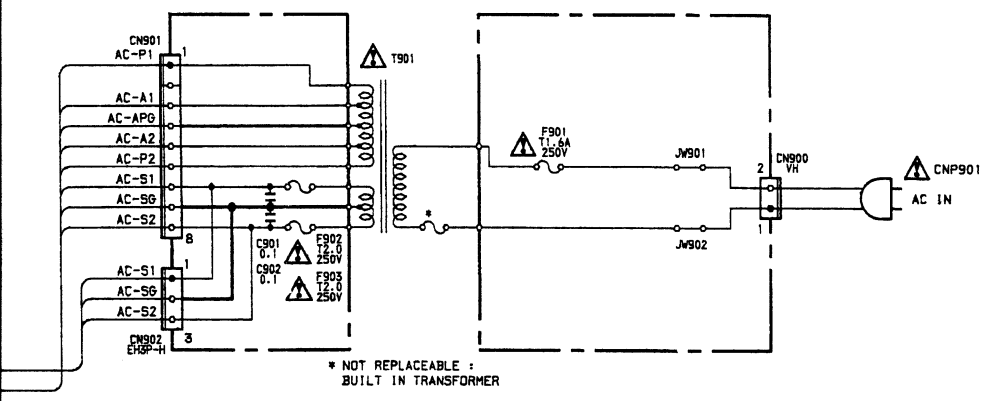
[POWER AMPLIFIER BOARD]



[PANEL BOARD]



[SECONDARY BOARD] [PRIMARY BOARD]



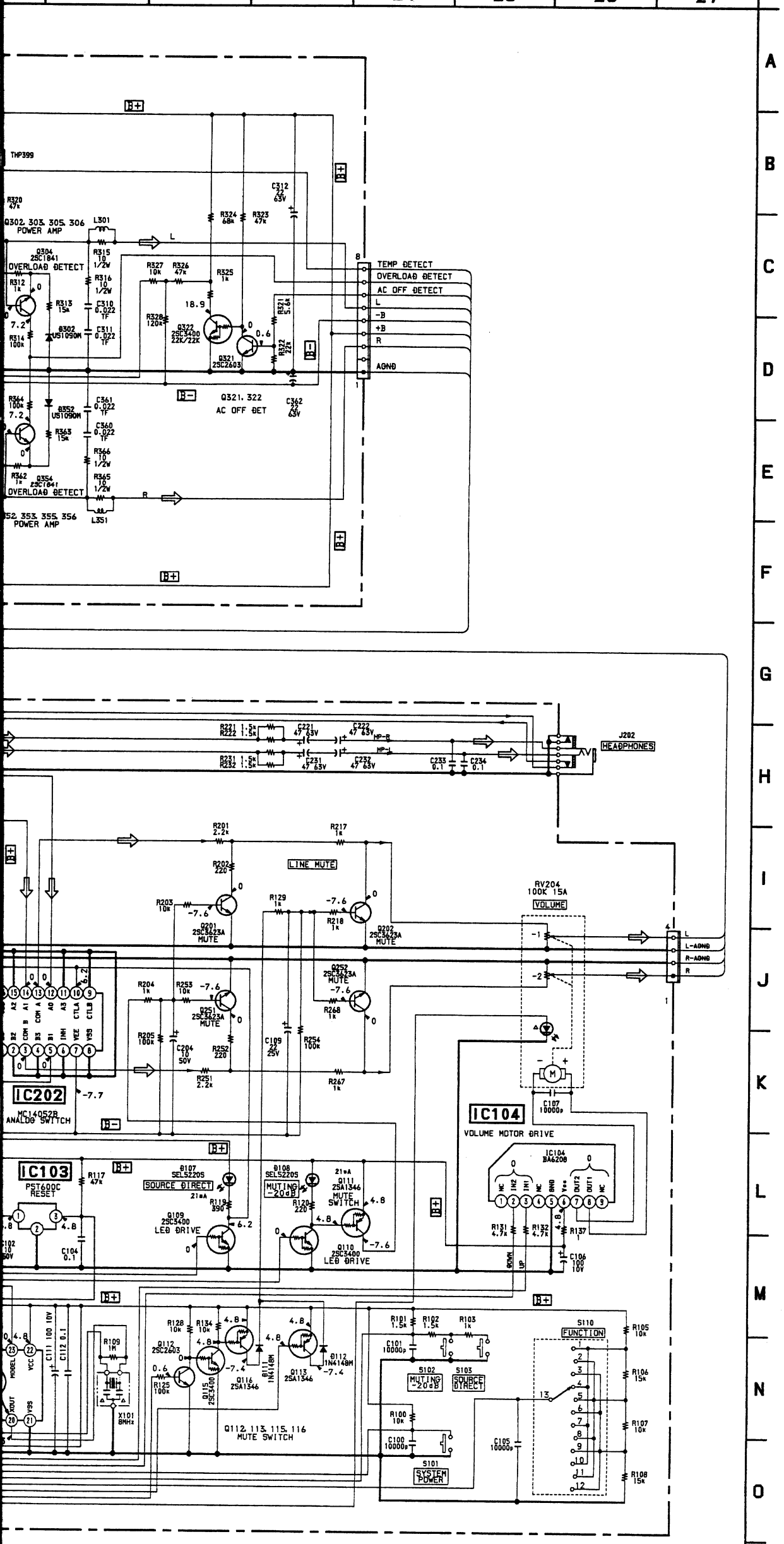
Note:

- All capacitors are in μF unless otherwise noted. pF: μμF 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼ W or less unless otherwise specified.
- △ : internal component.
- : nonflammable resistor.
- : fusible resistor.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

- B+ : B + Line.
- B− : B − Line.
- : adjustment for repair.

- Voltages and waveforms are dc with respect to ground un no-signal (detuned) conditions.
- Voltages are taken with a VOM (Input Impedance 10 MΩ). Voltage variations may be noted due to normal product tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal product tolerances.
- Circled numbers refer to waveforms.
- Signal path. ⇨ : TUNER
- Abbreviation
  G : Germany
  IT : Italian



pacitors are in μF unless otherwise noted. pF: μμF
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: B − Line.
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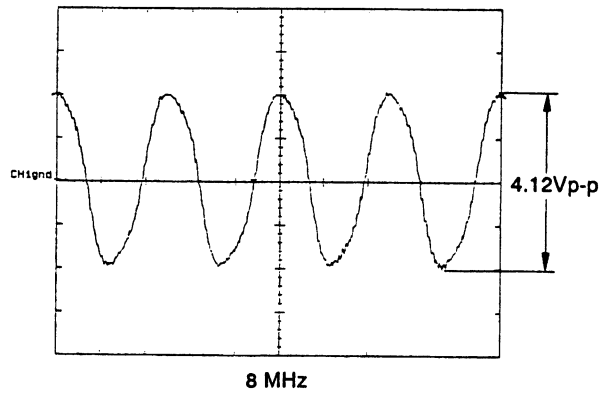
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ⇨ : TUNER
- Abbreviation
  G : Germany
  IT : Italian

• Waveform

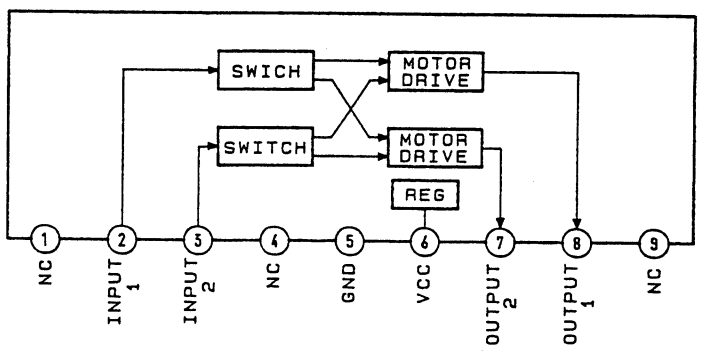
❶ IC101 ⑳



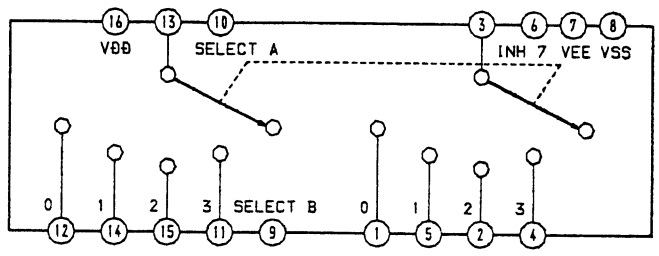
8 MHz

• IC Block Diagrams

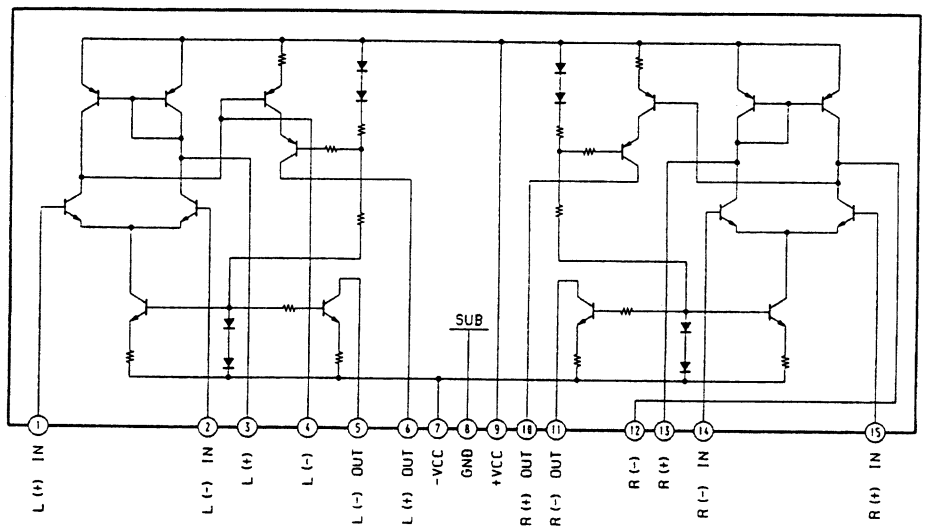
IC104 BA6208



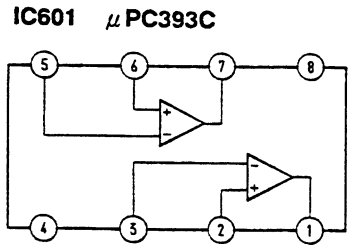
IC202, 203 MC14052BCP



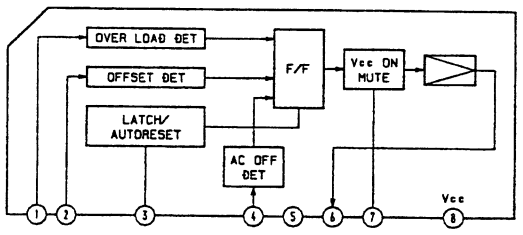
IC301 STK 350-010



IC601 μPC393C



IC701 μPC1237HA



SECTION 4
EXPLODED VIEWS

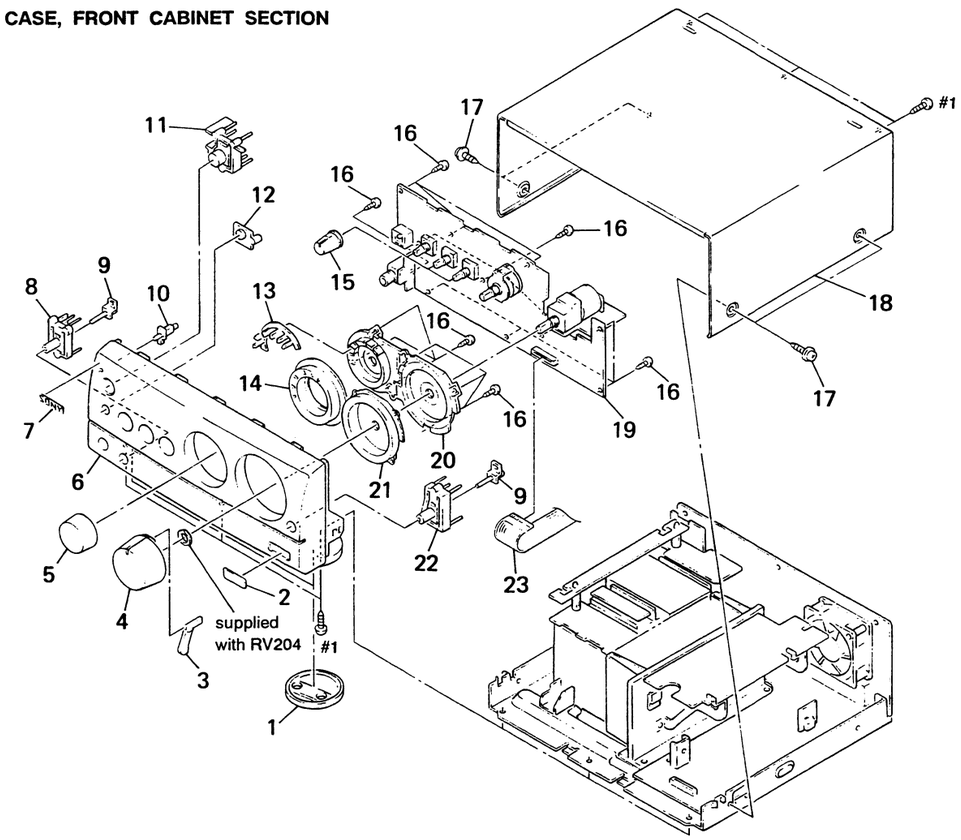
NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of the electrical parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

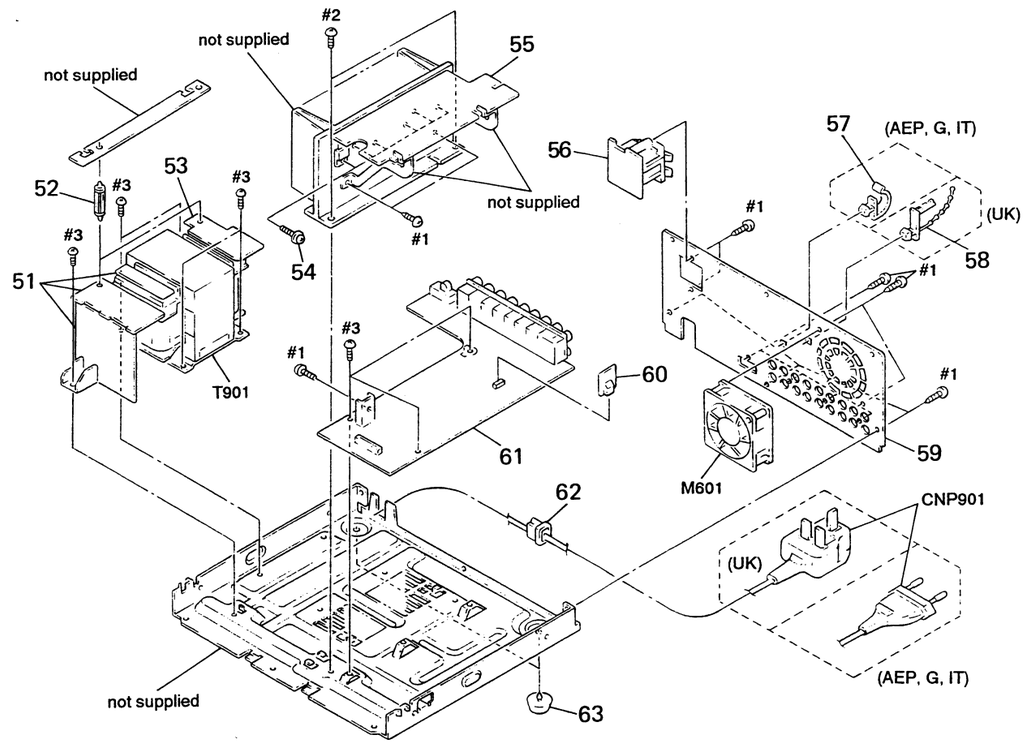
- Abbreviation
  G : German
  IT : Italian

(1) CASE, FRONT CABINET SECTION



Ref. No.	Part No.	Description	Remark
1	4-972-656-01	FOOT (ORNAMENT)	
2	4-965-651-01	EMBLEM (MOS)	
3	4-970-956-01	INDICATOR (VOL)	
4	4-970-955-01	KNOB (VOL)	
5	4-970-957-01	KNOB (FUN)	
6	4-970-951-01	PANEL, FRONT	
7	4-962-708-01	EMBLEM (4-A), SONY	
8	4-970-952-01	BUTTON (DIRECT)	
9	4-970-954-01	INDICATOR (D & M)	
10	4-970-963-01	INDICATOR (POWER)	
11	4-970-962-01	BUTTON (POWER)	
12	4-970-964-01	LENS	
13	4-970-959-01	INDICATOR (FUN)	
14	4-970-958-01	PLATE (FUN), ORNAMENTAL	
15	4-970-965-01	KNOB (TONE)	
16	4-951-620-01	SCREW (2.6X8), +BVTP	
17	3-363-099-01	SCREW (CASE 3 TP2)	
18	3-919-558-31	CASE	
* 19	A-4371-995-A	PANEL BOARD, COMPLETE	
* 20	4-970-960-01	BRACKET (FUN)	
21	4-970-967-01	PLATE (VOL), ORNAMENTAL	
22	4-970-953-01	BUTTON (MUTING)	
23	1-773-146-11	WIRE (FLAT TYPE) (21 CORE)	

(2) CHASSIS SECTION



Ref. No.	Part No.	Description	Remark
* 51	1-654-769-11	PRIMARY BOARD	
* 52	4-385-948-01	HOLDER, PCB	
* 53	1-654-770-11	SECONDARY BOARD	
54	3-905-609-01	SCREW (TRANSISTOR)	
* 55	A-4371-991-A	POWER AMPLIFIER BOARD, COMPLETE	
* 56	1-654-768-11	SPEEAKER BOARD	
* 57	4-949-235-01	HOOK (AEP, G, IT)	
58	4-956-370-02	BAND, PLUG FIXED (UK)	
* 59	4-970-970-11	PANEL, BACK (G)	
* 59	4-970-970-21	PANEL, BACK (UK)	
* 59	4-970-970-31	PANEL, BACK (IT)	
* 59	4-970-970-01	PANEL, BACK (AEP)	
* 60	1-656-408-11	FAN PROTECTOR BOARD	
* 61	A-4371-990-A	MAIN BOARD, COMPLETE	
* 62	3-703-244-00	BUSHING (2104), CORD	
63	4-965-822-01	FOOT	
⚠CNP901	1-696-169-11	CORD, POWER (AEP, G, IT)	
⚠CNP901	1-696-570-21	CORD, POWER (UK)	
M601	1-698-474-11	FAN, DC	
⚠T901	1-427-699-11	TRANSFORMER, POWER	

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

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SECTION 5
ELECTRICAL PARTS LIST

FAN PROTECTOR　MAIN

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Abbreviation　G:German　IT:Italian

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ, for example:
  uA..: μA.　uPA..: μPA.
  uPB..: μPB..　uPC..: μPC..　uPD..: μPD..
- CAPACITORS
  uF: μF
- COILS
  uH: μH

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

Ref.No.	Part No.	Description			Remark
*	1-656-408-11	FAN PROTECTOR BOARD			
		**********			
		< CAPACITOR >			
C603	1-126-059-11	ELECT	10uF	20% 50V	
C631	1-164-159-11	CERAMIC	0.1uF	50V	
		< CONNECTOR >			
* CN603	1-564-506-11	PLUG, CONNECTOR 3P			
* CN607	1-569-499-11	PIN, CONNECTOR 3P			
		< DIODE >			
D607	8-719-987-63	DIODE	1N4148M		
D608	8-719-987-63	DIODE	1N4148M		
		< TRANSISTOR >			
Q605	8-729-119-76	TRANSISTOR	2SA1175-HFE		
Q606	8-729-620-05	TRANSISTOR	2SC2603-EF		
Q607	8-729-620-05	TRANSISTOR	2SC2603-EF		
		< RESISTOR >			
R612	1-247-729-11	CARBON	15	5% 1/2W	
R613	1-249-429-11	CARBON	10K	5% 1/4W	
R614	1-249-417-11	CARBON	1K	5% 1/4W	
R615	1-249-429-11	CARBON	10K	5% 1/4W	
R616	1-249-429-11	CARBON	10K	5% 1/4W	
R617	1-249-441-11	CARBON	100K	5% 1/4W	
**********		**********			
*	A-4371-990-A	MAIN BOARD, COMPLETE			
		**********			
*	4-942-204-01	PLATE, GROUND			
		< CAPACITOR >			
C501	1-162-282-31	CERAMIC	100PF	10% 50V	
C502	1-162-282-31	CERAMIC	100PF	10% 50V	
C503	1-162-282-31	CERAMIC	100PF	10% 50V	
C504	1-162-282-31	CERAMIC	100PF	10% 50V	
C505	1-162-282-31	CERAMIC	100PF	10% 50V	
C506	1-162-282-31	CERAMIC	100PF	10% 50V	
C507	1-162-282-31	CERAMIC	100PF	10% 50V	
C508	1-162-282-31	CERAMIC	100PF	10% 50V	
C509	1-162-282-31	CERAMIC	100PF	10% 50V	
C521	1-162-282-31	CERAMIC	100PF	10% 50V	
C522	1-162-282-31	CERAMIC	100PF	10% 50V	
C523	1-162-282-31	CERAMIC	100PF	10% 50V	
C524	1-162-282-31	CERAMIC	100PF	10% 50V	
C525	1-162-282-31	CERAMIC	100PF	10% 50V	
C526	1-162-282-31	CERAMIC	100PF	10% 50V	
C527	1-162-282-31	CERAMIC	100PF	10% 50V	
C528	1-162-282-31	CERAMIC	100PF	10% 50V	
C529	1-162-282-31	CERAMIC	100PF	10% 50V	
C551	1-162-306-11	CERAMIC	0.01uF	30% 16V	
C552	1-162-306-11	CERAMIC	0.01uF	30% 16V	
C553	1-162-306-11	CERAMIC	0.01uF	30% 16V	
C554	1-162-306-11	CERAMIC	0.01uF	30% 16V	
C571	1-162-196-31	CERAMIC	5.6PF	10% 50V	
C572	1-126-059-11	ELECT	10uF	20% 50V	
C573	1-126-022-11	ELECT	47uF	20% 10V	
C581	1-162-196-31	CERAMIC	5.6PF	10% 50V	
C582	1-126-059-11	ELECT	10uF	20% 50V	
C583	1-126-022-11	ELECT	47uF	20% 10V	
C601	1-126-059-11	ELECT	10uF	20% 63V	
C602	1-126-059-11	ELECT	10uF	20% 50V	
C701	1-126-101-11	ELECT	100uF	20% 16V	
C702	1-126-101-11	ELECT	100uF	20% 16V	
C703	1-126-161-11	ELECT	2.2uF	20% 50V	
C704	1-124-994-11	ELECT	100uF	20% 10V	
C802	1-136-165-00	FILM	0.1uF	5% 50V	
C803	1-136-165-00	FILM	0.1uF	5% 50V	
C804	1-104-694-91	FILM	0.1uF	5% 100V	
C805	1-110-971-11	ELECT	4700uF	20% 63V	
C806	1-136-153-00	FILM	0.01uF	5% 50V	

MAIN

Ref.No.	Part No.	Description			Remark
C807	1-126-027-11	ELECT	1000uF	20% 25V	
C808	1-126-059-11	ELECT	10uF	20% 50V	
C809	1-124-997-11	ELECT	470uF	20% 10V	
C812	1-136-165-00	FILM	0.1uF	5% 50V	
C813	1-136-165-00	FILM	0.1uF	5% 50V	
C814	1-104-694-91	FILM	0.1uF	5% 100V	
C815	1-110-971-11	ELECT	4700uF	20% 63V	
C816	1-136-153-00	FILM	0.01uF	5% 50V	
C817	1-126-027-11	ELECT	1000uF	20% 25V	
C818	1-126-059-11	ELECT	10uF	20% 50V	
C819	1-124-997-11	ELECT	470uF	20% 10V	
C821	1-136-153-00	FILM	0.01uF	5% 50V	
C822	1-126-943-11	ELECT	2200uF	20% 25V	
C823	1-126-059-11	ELECT	10uF	20% 50V	
C824	1-124-473-11	ELECT	1000uF	20% 10V	
C831	1-136-153-00	FILM	0.01uF	5% 50V	
C832	1-126-942-61	ELECT	1000uF	20% 25V	
C833	1-126-059-11	ELECT	10uF	20% 50V	
C834	1-124-997-11	ELECT	470uF	20% 10V	
		< CONNECTOR >			
CN11	1-770-158-21	HOUSING, CONNECTOR 7P (SYSTEM CONTROL)			
CN501	1-691-770-11	PLUG (MICRO CONNECTOR) 8P			
CN601	1-691-770-31	PLUG (MICRO CONNECTOR) 8P			
CN606	1-569-490-11	SOCKET, CONNECTOR 3P			
* CN701	1-564-507-11	PLUG, CONNECTOR 4P			
CN801	1-568-838-11	SOCKET, CONNECTOR 21P			
		< DIODE >			
D551	8-719-987-63	DIODE	1N4148M		
D552	8-719-987-63	DIODE	1N4148M		
D553	8-719-987-63	DIODE	1N4148M		
D554	8-719-987-63	DIODE	1N4148M		
D555	8-719-987-63	DIODE	1N4148M		
D601	8-719-001-43	DIODE	UZL-11M1-TA		
D602	8-719-987-63	DIODE	1N4148M		
D603	8-719-987-63	DIODE	1N4148M		
D604	8-719-987-63	DIODE	1N4148M		
D605	8-719-200-82	DIODE	11ES2		
D606	8-719-987-63	DIODE	1N4148M		
D701	8-719-815-85	DIODE	1S1585		
D702	8-719-987-63	DIODE	1N4148M		
D703	8-719-815-85	DIODE	1S1585		
D704	8-719-815-85	DIODE	1S1585		
D705	8-719-815-85	DIODE	1S1585		
D801	8-719-987-63	DIODE	1N4148M		
D803	8-719-815-85	DIODE	1S1585		
D804	8-719-302-37	DIODE	RBV-602		
D805	8-719-200-02	DIODE	10E2		
D806	8-719-200-02	DIODE	10E2		
D807	8-719-987-63	DIODE	1N4148M		
D808	8-719-200-02	DIODE	10E2		
D809	8-719-200-02	DIODE	10E2		
D813	8-719-815-85	DIODE	1S1585		
D815	8-719-200-02	DIODE	10E2		
D816	8-719-200-02	DIODE	10E2		
D817	8-719-987-63	DIODE	1N4148M		
D818	8-719-200-02	DIODE	10E2		
D819	8-719-200-02	DIODE	10E2		
		< IC >			
IC501	8-759-000-47	IC	MC14051BCP		
IC502	8-759-000-47	IC	MC14051BCP		
IC503	8-759-000-49	IC	MC14066BCP		
IC571	8-759-900-72	IC	NE5532P		
IC601	8-759-103-93	IC	uPC393C		
IC701	8-759-111-68	IC	uPC1237HA		
IC801	8-759-605-00	IC	M5F78M07L		
IC802	8-759-231-53	IC	TA7805S		
IC811	8-759-094-70	IC	TA79007S-LBSONY		
IC812	8-759-604-90	IC	M5F7907L		
		< IC LINK >			
⚠ICP801	1-532-839-11	LINK, IC (1A)			
⚠ICP811	1-532-839-11	LINK, IC (1A)			
		< JACK >			
J501	1-770-015-11	JACK, PIN 6P (AUX/VIDEO, CD, TUNER)			
J502	1-770-015-11	JACK, PIN 6P (TAPE 2, MD/DAT)			
J503	1-770-015-11	JACK, PIN 6P (TAPE 1)			
		< TRANSISTOR >			
Q501	8-729-900-36	TRANSISTOR	DTC124ES		
Q502	8-729-900-36	TRANSISTOR	DTC124ES		
Q503	8-729-900-36	TRANSISTOR	DTC124ES		
Q504	8-729-620-05	TRANSISTOR	2SC2603-EF		
Q505	8-729-900-63	TRANSISTOR	DTA124ES		
Q506	8-729-900-63	TRANSISTOR	DTA124ES		
Q601	8-729-118-01	TRANSISTOR	2SB1116		
Q602	8-729-118-01	TRANSISTOR	2SB1116		
Q603	8-729-620-05	TRANSISTOR	2SC2603-EF		
Q604	8-729-140-82	TRANSISTOR	2SA988-PAFAEA		
Q701	8-729-900-63	TRANSISTOR	DTA124ES		
Q801	8-729-620-05	TRANSISTOR	2SC2603-EF		
		< RESISTOR >			
R501	1-249-417-11	CARBON	1K	5% 1/4W	
R502	1-249-417-11	CARBON	1K	5% 1/4W	

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.

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Ref. No.	Part No.	Description				Remark
R503	1-249-425-11	CARBON	4.7K	5%	1/4W	
R504	1-249-417-11	CARBON	1K	5%	1/4W	
R505	1-249-425-11	CARBON	4.7K	5%	1/4W	
R506	1-249-417-11	CARBON	1K	5%	1/4W	
R507	1-249-417-11	CARBON	1K	5%	1/4W	
R508	1-249-417-11	CARBON	1K	5%	1/4W	
R509	1-249-417-11	CARBON	1K	5%	1/4W	
R511	1-247-903-00	CARBON	1M	5%	1/4W	
R512	1-247-903-00	CARBON	1M	5%	1/4W	
R513	1-249-429-11	CARBON	10K	5%	1/4W	
R514	1-247-903-00	CARBON	1M	5%	1/4W	
R515	1-249-429-11	CARBON	10K	5%	1/4W	
R516	1-247-903-00	CARBON	1M	5%	1/4W	
R517	1-247-903-00	CARBON	1M	5%	1/4W	
R518	1-247-903-00	CARBON	1M	5%	1/4W	
R519	1-247-903-00	CARBON	1M	5%	1/4W	
R521	1-249-417-11	CARBON	1K	5%	1/4W	
R522	1-249-417-11	CARBON	1K	5%	1/4W	
R523	1-249-425-11	CARBON	4.7K	5%	1/4W	
R524	1-249-417-11	CARBON	1K	5%	1/4W	
R525	1-249-425-11	CARBON	4.7K	5%	1/4W	
R526	1-249-417-11	CARBON	1K	5%	1/4W	
R527	1-249-417-11	CARBON	1K	5%	1/4W	
R528	1-249-417-11	CARBON	1K	5%	1/4W	
R529	1-249-417-11	CARBON	1K	5%	1/4W	
R531	1-247-903-00	CARBON	1M	5%	1/4W	
R532	1-247-903-00	CARBON	1M	5%	1/4W	
R533	1-249-429-11	CARBON	10K	5%	1/4W	
R534	1-247-903-00	CARBON	1M	5%	1/4W	
R535	1-249-429-11	CARBON	10K	5%	1/4W	
R536	1-247-903-00	CARBON	1M	5%	1/4W	
R537	1-247-903-00	CARBON	1M	5%	1/4W	
R538	1-247-903-00	CARBON	1M	5%	1/4W	
R539	1-247-903-00	CARBON	1M	5%	1/4W	
R551	1-249-429-11	CARBON	10K	5%	1/4W	
R552	1-249-429-11	CARBON	10K	5%	1/4W	
R553	1-249-429-11	CARBON	10K	5%	1/4W	
R554	1-247-807-31	CARBON	100	5%	1/4W	
R555	1-247-807-31	CARBON	100	5%	1/4W	
R556	1-247-807-31	CARBON	100	5%	1/4W	
R557	1-247-903-00	CARBON	1M	5%	1/4W	
R558	1-249-429-11	CARBON	10K	5%	1/4W	
R559	1-249-441-11	CARBON	100K	5%	1/4W	
R560	1-247-903-00	CARBON	1M	5%	1/4W	
R561	1-247-807-31	CARBON	100	5%	1/4W	
R562	1-249-429-11	CARBON	10K	5%	1/4W	
R563	1-247-807-31	CARBON	100	5%	1/4W	
R564	1-249-429-11	CARBON	10K	5%	1/4W	

Ref. No.	Part No.	Description				Remark
R571	1-249-437-11	CARBON	47K	5%	1/4W	
R572	1-249-437-11	CARBON	47K	5%	1/4W	
R574	1-249-441-11	CARBON	100K	5%	1/4W	
R581	1-249-437-11	CARBON	47K	5%	1/4W	
R582	1-249-437-11	CARBON	47K	5%	1/4W	
R584	1-249-441-11	CARBON	100K	5%	1/4W	
R601	1-249-441-11	CARBON	100K	5%	1/4W	
R602	1-249-441-11	CARBON	100K	5%	1/4W	
R603	1-249-437-11	CARBON	47K	5%	1/4W	
R604	1-249-425-11	CARBON	4.7K	5%	1/4W	
R605	1-249-417-11	CARBON	1K	5%	1/4W	
R606	1-247-807-31	CARBON	100	5%	1/4W	
R607	1-249-425-11	CARBON	4.7K	5%	1/4W	
R608	1-249-425-11	CARBON	4.7K	5%	1/4W	
R609	1-249-441-11	CARBON	100K	5%	1/4W	
R610	1-249-441-11	CARBON	100K	5%	1/4W	
R611	1-249-429-11	CARBON	10K	5%	1/4W	
R701	1-249-429-11	CARBON	10K	5%	1/4W	
R702	1-249-441-11	CARBON	100K	5%	1/4W	
R703	1-249-435-11	CARBON	33K	5%	1/4W	
R704	1-249-437-11	CARBON	47K	5%	1/4W	
⚠R705	1-215-892-11	METAL OXIDE	1K	5%	2W	F
R706	1-249-438-11	CARBON	56K	5%	1/4W	
R707	1-249-437-11	CARBON	47K	5%	1/4W	
R708	1-249-435-11	CARBON	33K	5%	1/4W	
R709	1-249-435-11	CARBON	33K	5%	1/4W	
R710	1-249-429-11	CARBON	10K	5%	1/4W	
R711	1-249-435-11	CARBON	33K	5%	1/4W	
R712	1-249-429-11	CARBON	10K	5%	1/4W	
⚠R801	1-215-894-11	METAL OXIDE	2.2K	5%	2W	F
R802	1-249-429-11	CARBON	10K	5%	1/4W	
R803	1-260-111-11	CARBON	10K	5%	1/2W	
R804	1-249-429-11	CARBON	10K	5%	1/4W	
⚠R805	1-219-123-81	FUSIBLE	0.47	5%	1/4W	F
R813	1-260-111-11	CARBON	10K	5%	1/2W	
⚠R815	1-219-123-81	FUSIBLE	0.47	5%	1/4W	F

< RELAY >

RY701	1-515-920-11	RELAY (24V)
RY801	1-515-793-11	RELAY

< THERMISTOR(POSITIVE) >

THP399	1-807-796-11	THERMISTOR

****

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

PANEL

Ref.No.	Part No.	Description				Remark
*	A-4371-995-A	PANEL BOARD, COMPLETE				
		**********				
		< CAPACITOR >				
C100	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C101	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C102	1-126-059-11	ELECT	10uF	20%	50V	
C103	1-162-282-31	CERAMIC	100PF	10%	50V	
C104	1-164-159-11	CERAMIC	0.1uF		50V	
C105	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C106	1-124-994-11	ELECT	100uF	20%	10V	
C107	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C109	1-126-049-11	ELECT	22uF	20%	25V	
C111	1-124-994-11	ELECT	100uF	20%	10V	
C112	1-164-159-11	CERAMIC	0.1uF		50V	
C204	1-124-261-00	ELECT	10uF	20%	50V	
C205	1-126-163-11	ELECT	4.7uF	20%	50V	
C206	1-162-282-31	CERAMIC	100PF	10%	50V	
C207	1-162-217-31	CERAMIC	56PF	5%	50V	
C208	1-126-163-11	ELECT	4.7uF	20%	50V	
C209	1-136-157-00	FILM	0.022uF	5%	50V	
C210	1-136-163-00	FILM	0.068uF	5%	50V	
C211	1-136-167-00	FILM	0.15uF	5%	50V	
C212	1-136-173-00	FILM	0.47uF	5%	50V	
C213	1-126-163-11	ELECT	4.7uF	20%	50V	
C221	1-124-918-11	ELECT	47uF	20%	63V	
C222	1-124-918-11	ELECT	47uF	20%	63V	
C231	1-124-918-11	ELECT	47uF	20%	63V	
C232	1-124-918-11	ELECT	47uF	20%	63V	
C233	1-164-159-11	CERAMIC	0.1uF		50V	
C234	1-164-159-11	CERAMIC	0.1uF		50V	
C255	1-126-163-11	ELECT	4.7uF	20%	50V	
C256	1-162-282-31	CERAMIC	100PF	10%	50V	
C257	1-162-217-31	CERAMIC	56PF	5%	50V	
C258	1-126-163-11	ELECT	4.7uF	20%	50V	
C259	1-136-157-00	FILM	0.022uF	5%	50V	
C260	1-136-163-00	FILM	0.068uF	5%	50V	
C261	1-136-167-00	FILM	0.15uF	5%	50V	
C262	1-136-173-00	FILM	0.47uF	5%	50V	
C263	1-126-163-11	ELECT	4.7uF	20%	50V	
		< CONNECTOR >				
CN101	1-568-838-11	SOCKET, CONNECTOR 21P				
		< DIODE >				
D101	8-719-812-44	LED	TL0124 (TUNER)			
D102	8-719-812-44	LED	TL0124 (CD)			
D103	8-719-812-44	LED	TL0124 (AUX/VIDEO)			
D104	8-719-812-44	LED	TL0124 (MD/DAT)			
D105	8-719-812-44	LED	TL0124 (TAPE 2)			
D106	8-719-812-44	LED	TL0124 (TAPE 1)			
D107	8-719-812-44	LED	TL0124 (SOURCE DIRECT)			
D108	8-719-812-44	LED	TL0124 (MUTING -20dB)			
D110	8-719-987-63	DIODE	1N4148M			
D111	8-719-987-63	DIODE	1N4148M			
D112	8-719-987-63	DIODE	1N4148M			
D113	8-719-046-44	DIODE	SEL5221S			
		< IC >				
IC101	8-759-299-88	IC	M37471M2-281SP			
IC102	8-749-923-11	IC	GP1U58XB			
IC103	8-759-165-80	IC	PST600C-T			
IC104	8-759-962-08	IC	BA6208			
IC201	8-759-634-51	IC	M5218AP			
IC202	8-759-000-48	IC	MC14052BCP			
IC203	8-759-000-48	IC	MC14052BCP			
		< JACK >				
J202	1-507-854-21	JACK, LARGE TYPE (HEADPHONES)				
		< TRANSISTOR >				
Q101	8-729-900-63	TRANSISTOR	DTA124ES			
Q102	8-729-900-36	TRANSISTOR	DTC124ES			
Q103	8-729-900-36	TRANSISTOR	DTC124ES			
Q104	8-729-900-36	TRANSISTOR	DTC124ES			
Q105	8-729-900-36	TRANSISTOR	DTC124ES			
Q106	8-729-900-36	TRANSISTOR	DTC124ES			
Q107	8-729-900-36	TRANSISTOR	DTC124ES			
Q108	8-729-900-63	TRANSISTOR	DTA124ES			
Q109	8-729-900-36	TRANSISTOR	DTC124ES			
Q110	8-729-900-36	TRANSISTOR	DTC124ES			
Q111	8-729-900-63	TRANSISTOR	DTA124ES			
Q112	8-729-620-05	TRANSISTOR	2SC2603-EF			
Q113	8-729-900-63	TRANSISTOR	DTA124ES			
Q114	8-729-620-05	TRANSISTOR	2SC2603-EF			
Q115	8-729-900-36	TRANSISTOR	DTC124ES			
Q116	8-729-900-63	TRANSISTOR	DTA124ES			
Q117	8-729-900-36	TRANSISTOR	DTC124ES			
Q201	8-729-141-30	TRANSISTOR	2SC3623A-LK			
Q202	8-729-141-30	TRANSISTOR	2SC3623A-LK			
Q251	8-729-141-30	TRANSISTOR	2SC3623A-LK			
Q252	8-729-141-30	TRANSISTOR	2SC3623A-LK			
		< RESISTOR >				
R2	1-249-429-11	CARBON	10K	5%	1/4W	

Ref. No.	Part No.	Description				Remark
R100	1-249-429-11	CARBON	10K	5%	1/4W	
R101	1-249-419-11	CARBON	1.5K	5%	1/4W	
R102	1-249-419-11	CARBON	1.5K	5%	1/4W	
R103	1-249-417-11	CARBON	1K	5%	1/4W	
R105	1-249-429-11	CARBON	10K	5%	1/4W	
R106	1-249-431-11	CARBON	15K	5%	1/4W	
R107	1-249-429-11	CARBON	10K	5%	1/4W	
R108	1-249-431-11	CARBON	15K	5%	1/4W	
R109	1-247-903-00	CARBON	1M	5%	1/4W	
R110	1-247-815-91	CARBON	220	5%	1/4W	
R111	1-247-815-91	CARBON	220	5%	1/4W	
R112	1-249-429-11	CARBON	10K	5%	1/4W	
R113	1-249-417-11	CARBON	1K	5%	1/4W	
R114	1-249-429-11	CARBON	10K	5%	1/4W	
R115	1-249-429-11	CARBON	10K	5%	1/4W	
R116	1-249-393-11	CARBON	10	5%	1/4W	
R117	1-249-437-11	CARBON	47K	5%	1/4W	
R119	1-249-412-11	CARBON	390	5%	1/4W	
R120	1-247-815-91	CARBON	220	5%	1/4W	
R121	1-247-807-31	CARBON	100	5%	1/4W	
R122	1-247-807-31	CARBON	100	5%	1/4W	
R123	1-247-807-31	CARBON	100	5%	1/4W	
R124	1-249-414-11	CARBON	560	5%	1/4W	
R125	1-249-441-11	CARBON	100K	5%	1/4W	
R126	1-249-429-11	CARBON	10K	5%	1/4W	
R127	1-247-807-31	CARBON	100	5%	1/4W	
R128	1-249-429-11	CARBON	10K	5%	1/4W	
R129	1-249-417-11	CARBON	1K	5%	1/4W	
R131	1-249-425-11	CARBON	4.7K	5%	1/4W	
R132	1-249-425-11	CARBON	4.7K	5%	1/4W	
R133	1-249-415-11	CARBON	680	5%	1/4W	
R134	1-249-429-11	CARBON	10K	5%	1/4W	
R137	1-249-381-11	CARBON	1	5%	1/4W	
R201	1-249-421-11	CARBON	2.2K	5%	1/4W	
R202	1-247-815-91	CARBON	220	5%	1/4W	
R203	1-249-429-11	CARBON	10K	5%	1/4W	
R204	1-249-417-11	CARBON	1K	5%	1/4W	
R205	1-249-441-11	CARBON	100K	5%	1/4W	
R206	1-249-417-11	CARBON	1K	5%	1/4W	
R207	1-247-903-00	CARBON	1M	5%	1/4W	
R208	1-249-417-11	CARBON	1K	5%	1/4W	
R209	1-247-844-11	CARBON	3.6K	5%	1/4W	
R210	1-247-815-91	CARBON	220	5%	1/4W	
R212	1-247-815-91	CARBON	220	5%	1/4W	
R213	1-247-903-00	CARBON	1M	5%	1/4W	
R214	1-247-903-00	CARBON	1M	5%	1/4W	
R215	1-249-423-11	CARBON	3.3K	5%	1/4W	
R216	1-249-417-11	CARBON	1K	5%	1/4W	
R217	1-249-417-11	CARBON	1K	5%	1/4W	
R218	1-249-417-11	CARBON	1K	5%	1/4W	
R219	1-247-903-00	CARBON	1M	5%	1/4W	
R220	1-247-807-31	CARBON	100	5%	1/4W	
R221	1-249-419-11	CARBON	1.5K	5%	1/4W	
R222	1-249-419-11	CARBON	1.5K	5%	1/4W	
R231	1-249-419-11	CARBON	1.5K	5%	1/4W	
R232	1-249-419-11	CARBON	1.5K	5%	1/4W	
R251	1-249-421-11	CARBON	2.2K	5%	1/4W	
R252	1-247-815-91	CARBON	220	5%	1/4W	
R253	1-249-429-11	CARBON	10K	5%	1/4W	
R254	1-249-441-11	CARBON	100K	5%	1/4W	
R256	1-249-417-11	CARBON	1K	5%	1/4W	
R257	1-247-903-00	CARBON	1M	5%	1/4W	
R258	1-249-417-11	CARBON	1K	5%	1/4W	
R259	1-247-844-11	CARBON	3.6K	5%	1/4W	
R260	1-247-815-91	CARBON	220	5%	1/4W	
R262	1-247-815-91	CARBON	220	5%	1/4W	
R263	1-247-903-00	CARBON	1M	5%	1/4W	
R264	1-247-903-00	CARBON	1M	5%	1/4W	
R265	1-249-423-11	CARBON	3.3K	5%	1/4W	
R266	1-249-417-11	CARBON	1K	5%	1/4W	
R267	1-249-417-11	CARBON	1K	5%	1/4W	
R268	1-249-417-11	CARBON	1K	5%	1/4W	
R269	1-247-903-00	CARBON	1M	5%	1/4W	
R270	1-247-807-31	CARBON	100	5%	1/4W	

< VARIABLE RESISTOR >

RV201	1-223-810-11	RES, VAR, CARBON 10K/10K (TREBLE)
RV202	1-223-810-11	RES, VAR, CARBON 10K/10K (BASS)
RV204	1-223-812-11	RES, VAR, CARBON 100K/100K (VOLUME)
RV205	1-223-813-11	RES, VAR, CARBON 250K/250K (BALANCE)

< SWITCH >

S101	1-554-303-21	SWITCH, TACTILE (SYSTEM POWER)
S102	1-554-303-21	SWITCH, TACTILE (MUTING -20dB)
S103	1-554-303-21	SWITCH, TACTILE (SOURCE DIRECT)
S110	1-692-974-11	SWITCH, ROTARY (FUNCTION)

< VIBRATOR >

X101	1-579-125-11	VIBRATOR, CERAMIC (8MHz)

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* A-4371-991-A POWER AMPLIFIER BOARD, COMPLETE

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* 3-309-144-21 HEAT SINK

< CAPACITOR >

C301	1-124-916-11	ELECT	22uF	20%	63V
C302	1-162-282-31	CERAMIC	100PF	10%	50V

POWER AMPLIFIER

Ref. No.	Part No.	Description				Remark
C303	1-162-282-31	CERAMIC	100PF	10%	50V	
C304	1-124-572-11	ELECT	100uF	20%	63V	
C305	1-102-230-00	CERAMIC	4PF	0.25PF	500V	
C306	1-102-989-00	CERAMIC	68PF	5%	500V	
C307	1-102-989-00	CERAMIC	68PF	5%	500V	
C308	1-124-572-11	ELECT	100uF	20%	63V	
C309	1-124-918-11	ELECT	47uF	20%	63V	
C310	1-136-157-00	FILM	0.022uF	5%	50V	
C311	1-136-157-00	FILM	0.022uF	5%	50V	
C312	1-124-916-11	ELECT	22uF	20%	63V	
C322	1-124-916-11	ELECT	22uF	20%	63V	
C331	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C332	1-162-306-11	CERAMIC	0.01uF	30%	16V	
C333	1-102-233-00	CERAMIC	33PF	10%	500V	
C334	1-102-233-00	CERAMIC	33PF	10%	500V	
C335	1-104-694-91	FILM	0.1uF	5%	100V	
C351	1-124-916-11	ELECT	22uF	20%	63V	
C352	1-162-282-31	CERAMIC	100PF	10%	50V	
C353	1-162-282-31	CERAMIC	100PF	10%	50V	
C354	1-124-572-11	ELECT	100uF	20%	63V	
C355	1-102-230-00	CERAMIC	4PF	0.25PF	500V	
C356	1-102-989-00	CERAMIC	68PF	5%	500V	
C357	1-102-989-00	CERAMIC	68PF	5%	500V	
C358	1-124-572-11	ELECT	100uF	20%	63V	
C359	1-124-918-11	ELECT	47uF	20%	63V	
C360	1-136-157-00	FILM	0.022uF	5%	50V	
C361	1-136-157-00	FILM	0.022uF	5%	50V	
C362	1-124-916-11	ELECT	22uF	20%	63V	
C383	1-102-233-00	CERAMIC	33PF	10%	500V	
C384	1-102-233-00	CERAMIC	33PF	10%	500V	
		< CONNECTOR >				
* CN301	1-564-519-11	PLUG, CONNECTOR 4P				
* CN310	1-561-649-00	SOCKET, CONNECTOR 2P				
* CN360	1-561-649-00	SOCKET, CONNECTOR 2P				
		< DIODE >				
D301	8-719-310-60	LED	SEL1510C-C			
D302	8-719-815-85	DIODE	1S1585			
D351	8-719-310-60	LED	SEL1510C-C			
D352	8-719-815-85	DIODE	1S1585			
		< IC >				
IC301	8-749-010-77	IC	STK350-010			
		< COIL >				
* L301	1-420-872-00	COIL, AIR-CORE				
* L351	1-420-872-00	COIL, AIR-CORE				

Ref. No.	Part No.	Description				Remark
		< TRANSISTOR >				
Q301	8-729-203-45	TRANSISTOR	2SC3423-O			
Q302	8-729-030-34	TRANSISTOR	2SK2467-Y			
Q303	8-729-030-35	TRANSISTOR	2SJ440-Y			
Q304	8-729-140-84	TRANSISTOR	2SC1841-PAFAEA			
Q305	8-729-203-45	TRANSISTOR	2SC3423-O			
Q306	8-729-209-18	TRANSISTOR	2SA1360-Y			
Q321	8-729-620-05	TRANSISTOR	2SC2603-EF			
Q322	8-729-900-36	TRANSISTOR	DTC124ES			
Q324	8-729-119-76	TRANSISTOR	2SA1175-HFE			
Q325	8-729-119-76	TRANSISTOR	2SA1175-HFE			
Q351	8-729-203-45	TRANSISTOR	2SC3423-O			
Q352	8-729-030-34	TRANSISTOR	2SK2467-Y			
Q353	8-729-030-35	TRANSISTOR	2SJ440-Y			
Q354	8-729-140-84	TRANSISTOR	2SC1841-PAFAEA			
Q355	8-729-203-45	TRANSISTOR	2SC3423-O			
Q356	8-729-209-18	TRANSISTOR	2SA1360-Y			
		< RESISTOR >				
R301	1-249-417-11	CARBON	1K	5%	1/4W	
R302	1-249-438-11	CARBON	56K	5%	1/4W	
R303	1-249-414-11	CARBON	560	5%	1/4W	
R304	1-249-438-11	CARBON	56K	5%	1/4W	
R305	1-249-413-11	CARBON	470	5%	1/4W	
R306	1-249-923-11	CARBON	1K	5%	1/4W	
R307	1-249-407-11	CARBON	150	5%	1/4W	
⚠R308	1-212-873-11	FUSIBLE	47	5%	1/4W	F
⚠R309	1-212-873-11	FUSIBLE	47	5%	1/4W	F
⚠R310	1-217-151-00	RES, METAL PLATE	0.22			F
⚠R311	1-217-151-00	RES, METAL PLATE	0.22			F
R312	1-249-417-11	CARBON	1K	5%	1/4W	
R313	1-249-431-11	CARBON	15K	5%	1/4W	
R314	1-249-441-11	CARBON	100K	5%	1/4W	
R315	1-260-076-11	CARBON	10	5%	1/2W	
R316	1-260-076-11	CARBON	10	5%	1/2W	
R317	1-249-393-11	CARBON	10	5%	1/4W	
R318	1-249-393-11	CARBON	10	5%	1/4W	
R320	1-249-437-11	CARBON	47K	5%	1/4W	
R321	1-249-426-11	CARBON	5.6K	5%	1/4W	
R322	1-247-863-91	CARBON	22K	5%	1/4W	
R323	1-249-437-11	CARBON	47K	5%	1/4W	
R324	1-249-439-11	CARBON	68K	5%	1/4W	
R325	1-249-417-11	CARBON	1K	5%	1/4W	
R326	1-249-437-11	CARBON	47K	5%	1/4W	
R327	1-249-429-11	CARBON	10K	5%	1/4W	
R328	1-247-881-00	CARBON	120K	5%	1/4W	
R329	1-249-421-11	CARBON	2.2K	5%	1/4W	
R330	1-249-421-11	CARBON	2.2K	5%	1/4W	

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.

POWER AMPLIFIER

Ref.No.	Part No.	Description			Remark
R331	1-249-421-11	CARBON	2.2K	5% 1/4W	
R332	1-249-421-11	CARBON	2.2K	5% 1/4W	
⚠R333	1-212-889-00	FUSIBLE	220	5% 1/4W	F
⚠R334	1-212-889-00	FUSIBLE	220	5% 1/4W	F
⚠R335	1-212-893-00	FUSIBLE	330	5% 1/4W	F
R351	1-249-417-11	CARBON	1K	5% 1/4W	
R352	1-249-438-11	CARBON	56K	5% 1/4W	
R353	1-249-414-11	CARBON	560	5% 1/4W	
R354	1-249-438-11	CARBON	56K	5% 1/4W	
R355	1-249-413-11	CARBON	470	5% 1/4W	
R356	1-249-923-11	CARBON	1K	5% 1/4W	
R357	1-249-407-11	CARBON	150	5% 1/4W	
⚠R358	1-212-873-11	FUSIBLE	47	5% 1/4W	F
⚠R359	1-212-873-11	FUSIBLE	47	5% 1/4W	F
⚠R360	1-217-151-00	RES, METAL PLATE	0.22		F
⚠R361	1-217-151-00	RES, METAL PLATE	0.22		F
⚠R362	1-249-417-11	CARBON	1K	5% 1/4W	F
R363	1-249-431-11	CARBON	15K	5% 1/4W	
R364	1-249-441-11	CARBON	100K	5% 1/4W	
R365	1-260-076-11	CARBON	10	5% 1/2W	
R366	1-260-076-11	CARBON	10	5% 1/2W	
R367	1-249-393-11	CARBON	10	5% 1/4W	
R368	1-249-393-11	CARBON	10	5% 1/4W	
⚠R385	1-212-893-00	FUSIBLE	330	5% 1/4W	F
		< VARIABLE RESISTOR >			
RV301	1-238-598-11	RES, ADJ, CARBON	2.2K		
RV351	1-238-598-11	RES, ADJ, CARBON	2.2K		

****

*	1-654-769-11	PRIMARY BOARD	
		**********	
	1-533-293-11	FUSE HOLDER	
		< CONNECTOR >	
CN900	1-564-321-00	PIN, CONNECTOR 2P	
		< FUSE >	
⚠F901	1-532-259-00	FUSE(TIME-LAG 1.6A 250V)	

****

*	1-654-770-11	SECONDARY BOARD	
		**********	
	1-533-293-11	FUSE HOLDER	
		< CAPACITOR >	
C901	1-164-159-11	CERAMIC	0.1uF 50V

PRIMARY

SECONDARY

SPEAKER

Ref.No.	Part No.	Description			Remark
C902	1-164-159-11	CERAMIC	0.1uF		50V
		< CONNECTOR >			
CN901	1-691-770-11	PLUG (MICRO CONNECTOR)	8P		
* CN902	1-564-506-11	PLUG, CONNECTOR	3P		
		< FUSE >			
⚠F902	1-532-203-00	FUSE(TIME-LAG 2.0A 250V)			
⚠F903	1-532-203-00	FUSE(TIME-LAG 2.0A 250V)			

****

*	1-654-768-11	SPEAKER BOARD			
		**********			
		< CAPACITOR >			
C401	1-104-694-91	FILM	0.1uF	5%	100V
C402	1-104-694-91	FILM	0.1uF	5%	100V
C451	1-104-694-91	FILM	0.1uF	5%	100V
C452	1-104-694-91	FILM	0.1uF	5%	100V
		< CONNECTOR >			
* CN451	1-564-519-11	PLUG, CONNECTOR	4P		
		< RESISTOR >			
R401	1-249-393-11	CARBON	10	5% 1/4W	
R402	1-249-393-11	CARBON	10	5% 1/4W	
R451	1-249-393-11	CARBON	10	5% 1/4W	
R452	1-249-393-11	CARBON	10	5% 1/4W	
		< TERMINAL >			
TB401	1-537-822-11	TERMINAL BOARD (SP)			(SPEAKER)

****

		MISCELLANEOUS
		**********
23	1-773-146-11	WIRE (FLAT TYPE) (21 CORE)
⚠CNP901	1-696-169-11	CORD, POWER (AEP, G, IT)
⚠CNP901	1-696-570-21	CORD, POWER (UK)
M601	1-698-474-11	FAN, DC
⚠T901	1-427-699-11	TRANSFORMER, POWER

****

		**********
		HARDWARE LIST
		**********
#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S
#2	7-682-548-04	SCREW +BVTT 3X8 (S)
#3	7-685-871-01	SCREW +BVTT 3X6 (S)

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.

English
95E057560-1

Sony Corporation
Consumer A&V Products Company
Home A&V Products Div.

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9-960-231-11

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Quality Engineering Dept.

Printed by: Schaltungsdienst Lange, Berlin (GERMANY)

TC-EX7/EX10

SERVICE MANUAL

AEP Model
UK Model
TC-EX7/EX10

E Model
Australian Model
TC-EX10

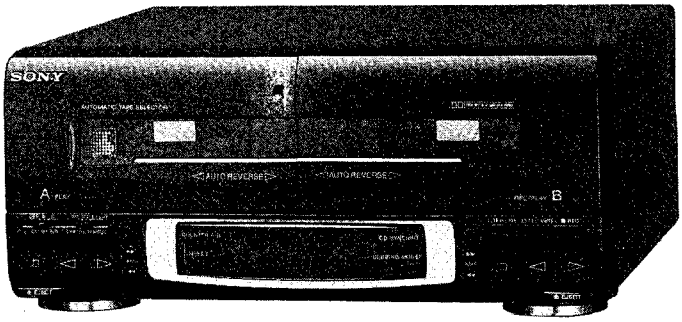

Photo : TC-EX10

TC-EX7 is cassette deck section in MHC-EX7.
TC-EX10 is cassette deck section in MHC-EX9AV/EX10AV.

SONY-07615

* Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.

"DOLBY", the double-D symbol ◻◻ and "HX PRO" are trademarks of Dolby Laboratories Licensing Corporation.

Model Name Using Similar Mechanism		TC-A590
Tape Transport Machanism Type	DECK A	TCM-190RA12CL
	DECK B	TCM-190RB12CL

SPECIFICATIONS

Stereo cassette deck

Recording system
4-track 2-channel stereo

Frequency response
(DOLBY NR OFF)
40 – 13,000 Hz (±3 dB),
using Sony TYPE I cassette
40 – 14,000 Hz (±3 dB),
using Sony TYPE II cassette
40 – 15,000 Hz (± 3 dB),
using Sony TYPE IV cassette

Wow and flutter
0.1% WRMS±0.3% (DIN)

Dimensions
Approx. 280 x 125 x 285 mm (w/h/d)
(11 1/8 x 5 x 11 1/4 inches)

Mass Approx. 3.0 kg (6 lb 10 oz)

MICROFILM

STEREO CASSETTE DECK

SONY®

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SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

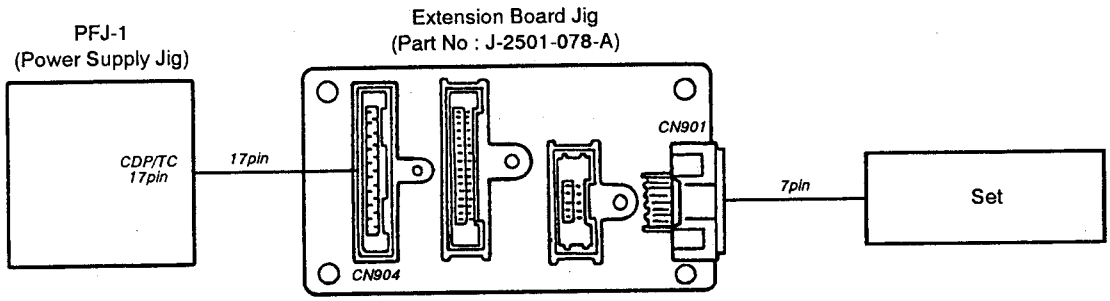
SERVICING NOTE

• **POWER SUPPLIED WHILE SERVICING**

This unit does not work independently because of not having the power supply.
It must be unite together with the other units when repaired.

● **Power supply method using Jig**

Connect the set and jig as shown in the diagram below and turn on the power switch.

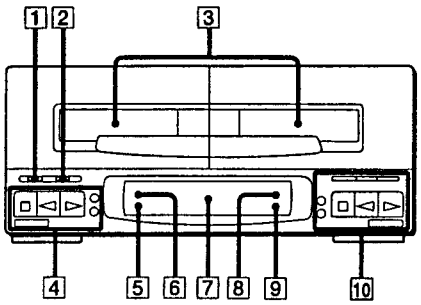


This section is extracted from instruction manual.

Index to Parts and Controls

Front Panel

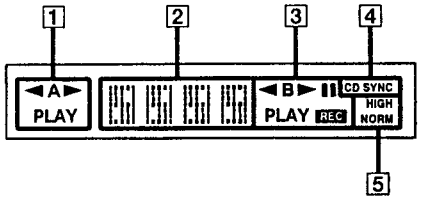
Tape player



1 DOLBY NR selector
2 DIRECTION MODE selector
3 Cassette compartments
4 Tape operating buttons (for deck A)
▷ (front side play)
◁ (reverse side play)
□ (stop)
▶▶ (fast rightward and AMS**)
◀◀ (fast leftward and AMS**)
⏏ EJECT button (14)
5 RESET (counter reset) button
6 COUNTER A/B button
7 Display window
8 CD SYNCHRO button
9 DUBBING MODE button
10 Tape operating buttons (for deck B)
▷ (front side play)
◁ (reverse side play)
□ (stop)
▶▶ (fast rightward and AMS**)
◀◀ (fast leftward and AMS**)
II PAUSE
○ REC MUTE button
● REC (recording)
⏏ EJECT button
**AMS: Automatic Music Sensor

Display Window

Tape Player



1 Deck A status indication
2 Tape counter indication
3 Deck B status indication
4 CD SYNC (synchro) indication
5 Dubbing mode indication

SECTION 2
ADJUSTMENTS

2-1. MECHANICAL ADJUSTMENTS

PRECAUTION

1. Clean the following parts with a denatured alcohol-moistened swab:
   record/playback/erase head pinch roller
   rubber belts capstan
   idlers
2. Demagnetize the record/playback head with a head demagnetizer. (Head demagnetizer do not approach for the erase head.)
3. Do not use a magnetized screwdriver for the adjustment.
4. After the adjustments, apply suitable locking compound to the parts adjusted.
5. The adjustments should be performed with the rated power supply voltage unless otherwise noted.

Torque Measurement

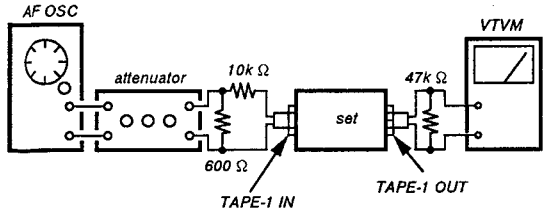
Torque	Torque meter	Meter reading
Forward	CQ-102C	30 to 60g • cm (0.42 to 0.83oz • inch)
Forward back tension	CQ-102C	1 to 5g • cm (0.014 to 0.069 oz • inch)
Reverse	CQ-102RC	30 to 60g • cm (0.42 to 0.83 oz • inch)
Reverse back tension	CQ-102RC	1 to 5g • cm (0.014 to 0.069 oz • inch)
FF/REW	CQ-201B	65 to 90g•cm (0.91 to 1.25 oz•inch)

2-2. ELECTRICAL ADJUSTMENTS

PRECAUTION

1. The adjustment should be performed in the publication. (Be sure to male playback adjustment at first.)
2. The adjustments and measurement should be performed for both L-CH and R-CH.
   - Switch position
     DOLBY NR switch : OFF
     DIRECTION MODE switch : ⇄
   - Standard record position :
     Deliver the standard input signal level to input jack as follows.

– Record Mode –



Standard Input Level

Input terminal	TAPE-1 (LINE IN)
source impedance	10k Ω
input signal level	0.5V (– 3.8dB)

Standard Output Level

Output terminal	TAPE-1 (LINE OUT)
load impedance	47k Ω
output signal level	0.5V (– 3.8dB)

Test Tape

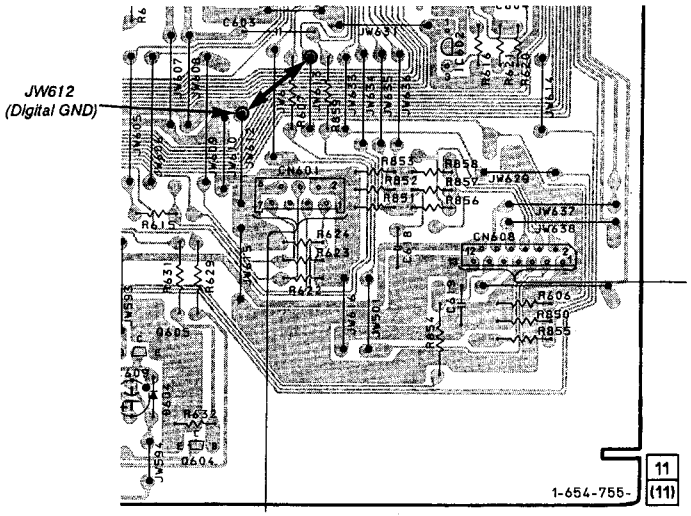
Tape	Contents	Use
P-4-A100	10kHz, – 10dB	Azimuth Adjustment
P-4-L300	315Hz, 0dB	PB Level Adjustment
WS-48B	3kHz, 0dB	Tape Speed Adjustment

0dB=0.775V

Test Mode

1. If the power voltage of deck supplied by TA-EX7/EX10.
   ① Short-circuit following portion (IC104 ⑤ pin to Digital GND (JW612)) on the main board.
   ② Turn the POWER on.
   ③ Open the short-circuit to release test mode.

[MAIN BOARD]



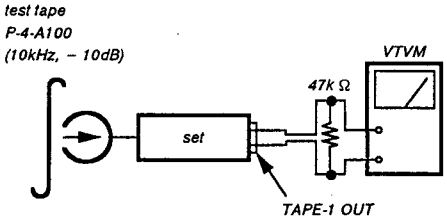
2. If the power voltage deck supplied by jig.
   After, turning on the power, press the STOP button of both DECK-A and DECK-B at the same time.

Record/Playback Head Azimuth Adjustment

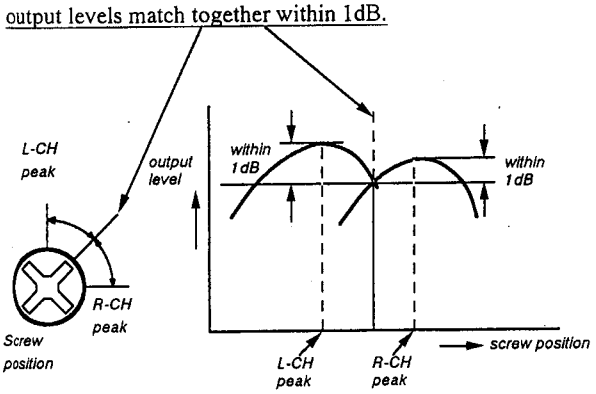
DECK-A DECK-B

Procedure :

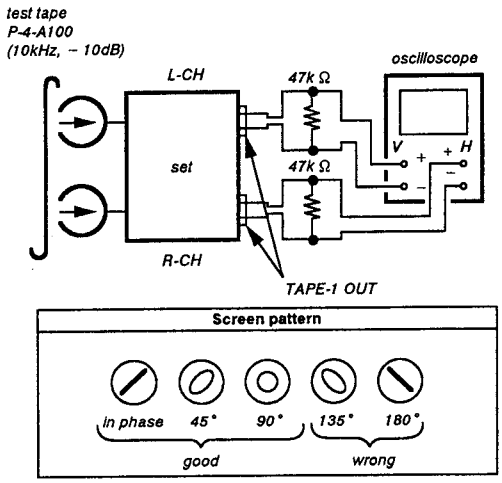
1. Forward playback Mode



2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 1dB.

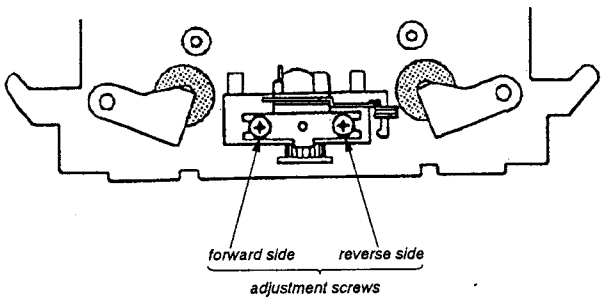


3. Playback Mode



4. Change the reveres playback mode and repeat the steps 1 to 3.
5. After the adjustment, lock the adjustment screws with suitable locking compound.

Adjustment Location : – record/playback head –

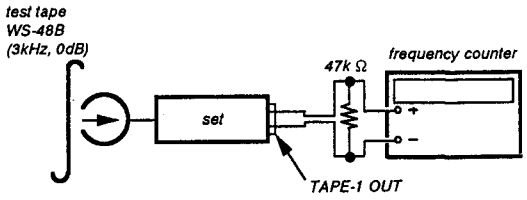


Tape Speed Adjustment

DECK-A DECK-B

Procedure :

– Forward Playback Mode –



(high speed adjustment)

1. Set to test mode. (Refer to page 4)
2. Set to FWD playback mode.
3. Press the DUBBING MODE button .
4. Adjust RV72 so that the frequency counter reading becomes 6,000 ± 60Hz.

(normal speed adjustment)

1. Set to FWD playback mode.
2. Set the DUBBING MODE button to NORMAL.
3. Adjust RV71 so that the frequency counter reeding becomes 3,000 ± 30Hz.

Frequency difference between the beginning and the end of the tape should be within 3%.

Frequency difference between the deck A and deck B the beginning of the tape should be within 1.5%.

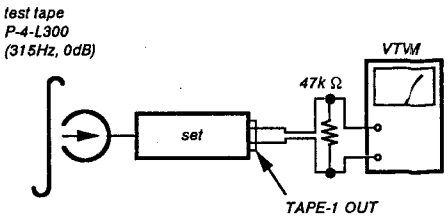
Adjustment Location : AUDIO board.

Playback Level Adjustment

DECK-A DECK-B

Procedure :

– Forward Playback Mode –



Adjust RV11(L-CH) and RV21(R-CH) so the VTVM reading becomes the adjustment limits below.

Adjustment Value :

TAPE-1 OUT level : – 7.4 ± 1.0dB (0.294 to 0.371V)

Level difference between channels : within 0.5dB

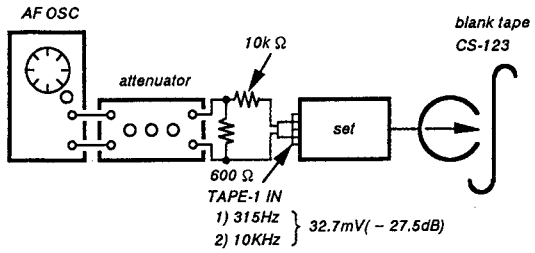
Confirm the TAPE-1 OUT level does not change in playback mode while changing the mode from playback to stop several times.

Adjustment Location : AUDIO board.

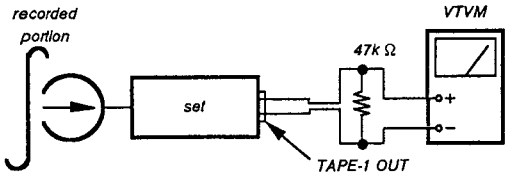
Record Bias Adjustment DECK-B

Procedure :

1. Record Mode



2. Playback Mode



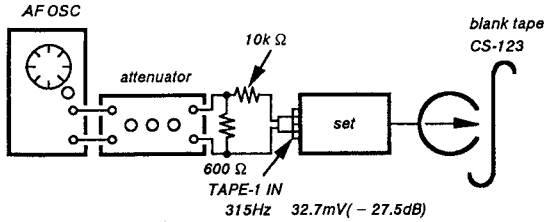
Confirm that the 10kHz playback output is 0 ± 0.5dB relative to the 315Hz output. If necessary, adjust RV81 (L-CH), RV91 (R-CH) and repeat the steps given above.

Adjustment Location : AUDIO board.

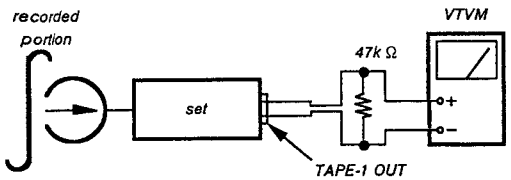
Record Level Adjustment DECK-B

Procedure :

1. Record Mode



2. Playback Mode



Confirm playback the tape recorded become adjustment level as follows.
If necessary, adjust RV101 (L-CH), RV201 (R-CH) and repeat the steps 1 and 2.

Adjustment Value :

TAPE-1 OUT level : – 27.5 ± 0.5dB (30.8 to 34.6mV)

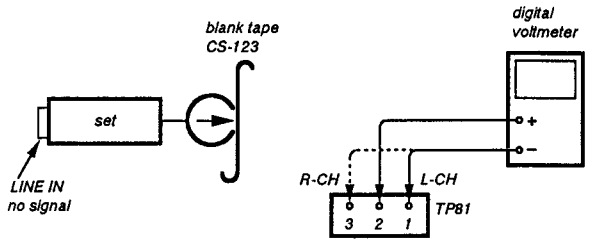
Adjustment Location : TC MAIN board.

Bias Consumption Current Adjustment

This adjustment should be performed when replacing the head assy or the bias oscillating transformer (T81, T91).

Procedure :

( ) : R-CH



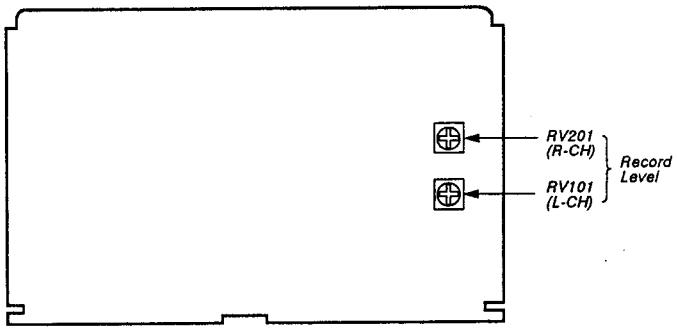
1. Connect the digital voltmeter to test point TP81.
2. Set RV81 (RV91) to mechanical center.
3. Set to FWD record mode.
4. Adjust T81 (T91) so that the digital voltmeter reading becomes minimum.

Adjustment Value : Maximum 140mV

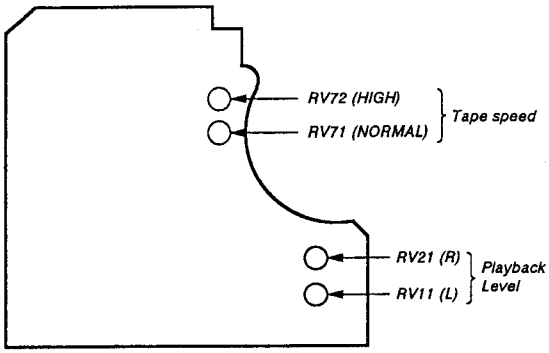
Adjustment Location : AUDIO board

– Adjustment Parts Location Diagrams –

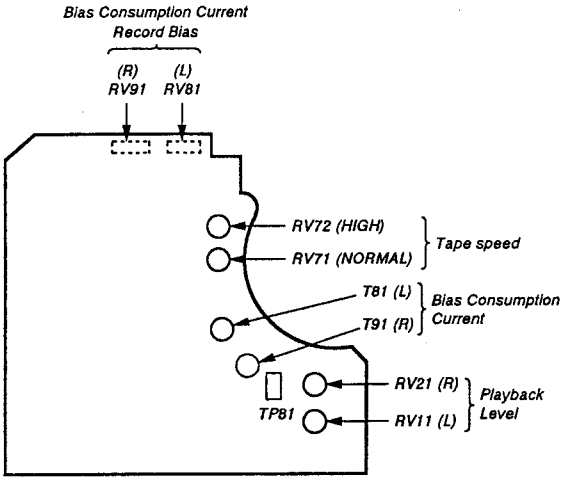
[MAIN BOARD]



DECK-A :
[AUDIO BOARD]



DECK-B :
[AUDIO BOARD]



SECTION 3
EXPLANATION OF IC TERMINALS

IC104 M38123M4-118FP SYSTEM CONTROL (MAIN BOARD)

<table>
<tr><th>Pin No.</th><th>Pin name</th><th>I/O</th><th>Description</th></tr>
<tr><td>1</td><td>B HALF</td><td>I</td><td>B Half detection input. "L" : Presence "H" : Nothing</td></tr>
<tr><td>2</td><td>KEY3</td><td rowspan="3">I</td><td rowspan="3">Not used. (+5V)</td></tr>
<tr><td>3</td><td>KEY2</td></tr>
<tr><td>4</td><td>KEY1</td></tr>
<tr><td>5</td><td>TEST</td><td>I</td><td>Electrical adjustment test mode setting. "L" : Test mode</td></tr>
<tr><td>6</td><td>DISP RST</td><td>O</td><td>Reset output to IC301 (M38122M2-102FP)</td></tr>
<tr><td>7</td><td>DISP SYNC</td><td>O</td><td>SYNC output to IC301 (M38122M2-102FP)</td></tr>
<tr><td>8</td><td>DISP CLK</td><td>O</td><td>Clock output to IC301 (M38122M2-102FP)</td></tr>
<tr><td>9</td><td>DISP OUT</td><td>O</td><td>Data output to IC301 (M38122M2-102FP)</td></tr>
<tr><td>10</td><td>DISP IN</td><td>I</td><td>Data input from IC301 (M38122M2-102FP)</td></tr>
<tr><td>11</td><td>B REEL2</td><td rowspan="3">O</td><td rowspan="3">Deck B reel motor control output.
<table>
<tr><th></th><th>FF</th><th>TRIG</th><th>STOP</th><th>FWD</th></tr>
<tr><td>REEL 1</td><td>H</td><td>L</td><td>L</td><td>H</td></tr>
<tr><td>REEL 2</td><td>L</td><td>H</td><td>L</td><td>L</td></tr>
<tr><td>REEL 3</td><td>H</td><td>H</td><td>L</td><td>L</td></tr>
</table></td></tr>
<tr><td>12</td><td>B REEL3</td></tr>
<tr><td>13</td><td>B REEL1</td></tr>
<tr><td>14</td><td>A REEL1</td><td rowspan="3">O</td><td rowspan="3">Deck A reel motor control output.</td></tr>
<tr><td>15</td><td>A REEL3</td></tr>
<tr><td>16</td><td>A REEL2</td></tr>
<tr><td>17</td><td>PWR IN</td><td>I</td><td>+5V power supply input.</td></tr>
<tr><td>18</td><td>AUB IN</td><td>I</td><td>Audio bus input.</td></tr>
<tr><td>19</td><td>NRST</td><td>I</td><td>Microcomputer reset input.</td></tr>
<tr><td>20</td><td>AUB OUT</td><td>O</td><td>Audio bus output.</td></tr>
<tr><td>21</td><td>XC OUT</td><td>O</td><td>Not used. (GND)</td></tr>
<tr><td>22</td><td>X IN</td><td>I</td><td rowspan="2">Osillator connection pins. (4MHz)</td></tr>
<tr><td>23</td><td>X OUT</td><td>O</td></tr>
<tr><td>24</td><td>Vss</td><td>–</td><td>GND.</td></tr>
<tr><td>25</td><td>VER</td><td>–</td><td>GND.</td></tr>
<tr><td>26</td><td>PWR OUT</td><td>O</td><td>Not used. (OPEN)</td></tr>
<tr><td>27</td><td>LINE MUTE</td><td>O</td><td>Line mute ON/OFF. "L" : ON</td></tr>
<tr><td>28</td><td>BIAS</td><td>O</td><td>Bias oscillation control output. "L" : ON</td></tr>
<tr><td>29</td><td>NC</td><td>–</td><td>GND.</td></tr>
<tr><td>30</td><td>DAT FUNC</td><td>O</td><td>DAT mute output.</td></tr>
<tr><td>31</td><td>CD FUNC</td><td>O</td><td>CD mute output.</td></tr>
<tr><td>32</td><td>PASS</td><td>O</td><td>PASS amplifier switch output to dolby.</td></tr>
<tr><td>33</td><td>EQ H/L</td><td>O</td><td>REC equalizer switching output. "L" : High speed "H" : Normal speed</td></tr>
<tr><td>34</td><td>REC MUTE</td><td>O</td><td>REC mute output.</td></tr>
<tr><td>35</td><td>PB SEL</td><td>O</td><td>Play mode deck A/B select output. "L" : DECK A "H" : DECK B</td></tr>
<tr><td>36</td><td>AMS G SEL</td><td>O</td><td>AMS/BS mode select output. "H" : AMS mode "L" : BS mode</td></tr>
<tr><td>37</td><td>1599 MUTE</td><td>O</td><td>Mute output to IC101 (CXA1599Q). "H" : ON "L" : OFF</td></tr>
<tr><td>38</td><td>NC</td><td>–</td><td>Not used. (OPEN)</td></tr>
<tr><td>39</td><td>NR RELAY</td><td>O</td><td>ALC control output.</td></tr>
<tr><td>40</td><td>CD SYNC</td><td>O</td><td>Not used. (OPEN)</td></tr>
</table>

Pin No.	Pin name	I/O	Description
41	DUB H	O	Not used. (OPEN)
42	DUB N	O	Not used. (OPEN)
43	PAUSE	O	Not used. (OPEN)
44	REC	O	Not used. (OPEN)
45	B ◁	O	Not used. (OPEN)
46	B ▷	O	Not used. (OPEN)
47	A ◁	O	Not used. (OPEN)
48	A ▷	O	Not used. (OPEN)
49	B STOP SW	I	Deck B stop detect input. "H" : STOP
50	A STOP SW	I	Deck A stop detect input. "H" : STOP
51	+7.5V DET	I	+7.5V power supply detect input.
52	RELAY	O	Control output to REC/PB select output. "H" : REC "L" : PLAY
53	REC/PB	O	Dolby IC (IC103) REC/PB select output. "H" : REC "L" : PLAY
54	CAP. MOT H/L	O	Capstan motor HIGH/LOW select output. "H" : HIGH "L" : LOW
55	B CAP. MOTOR	O	Deck B capstan motor control output. "H" : ON "L" : OFF
56	A CAP. MOTOR	O	Deck A capstan motor control output. "H" : ON "L" : OFF
57	V_{DD}	–	+5V power supply.
58	VEE	–	GND.
59	AVss	–	GND.
60	VREF	I	A/D converter reference power supply +5V.
61	A HALF	I	Deck A half detect input.
62	BS. REEL IN	I	Deck B reel table signal input.
63	AS. REEL IN	I	Deck A reel table signal input.
64	AMS IN	I	AMS input. "L" : No song "H" : Song

IC301 M38122M2-102FP FL DRIVE (PANEL BOARD)

Pin No.	Pin name	I/O	Description
1	KEY3	I	Not used. (OPEN)
2	KEY2	I	Key input. (A/D converter analog input)
3	KEY1		
4	KEY0		
5	ALL ON	I	Not used. (+5V)
6	TEST MODE	I	Not used. (+5V)
7	VERSION	I	Not used. (+5V)
8	CLOCK	I	Clock input from IC104 (M38123M4-118FP)
9	DATA OUT	O	Data output to IC104 (M38123M4-118FP)
10	DATA IN	I	Data input from IC104 (M38123M4-118FP)
11	———	–	Not used. (OPEN)
12	———	–	Not used. (OPEN)
13	———	–	Not used. (OPEN)
14	———	–	Not used. (+5V)
15	———	–	Not used. (OPEN)
16	———	–	Not used. (OPEN)
17	MASTER SYNC	I	SYNC input from IC104 (M38123M4-118FP)
18	SIRCS	I	Not used. (OPEN)
19	RESET	I	Reset signal input.
20	———	–	Not used. (OPEN)
21	———	–	Not used. (OPEN)
22	X IN	I	Osillator connection pins. (4MHz)
23	X OUT	O	
24	Vss	–	GND.
25	———	–	Not used. (OPEN)
26	———	–	Not used. (OPEN)
27	———	–	Not used. (OPEN)
28	———	–	Not used. (OPEN)
29 – 48	P20 – P1	O	FL tube segment output.
49 – 54	1G – 6G	O	FL tube digital output.
55	———	–	Not used. (OPEN)
56	———	–	Not used. (OPEN)
57	Vcc	–	+5V power supply.
58	VEE	–	Minus voltage for FL tube.
59	AVss	–	GND
60	VREF	–	A/D converter reference power supply +5V.
61	———	–	Not used. (OPEN)
62	———	–	Not used. (OPEN)
63	———	–	Not used. (OPEN)
64	———	–	Not used. (OPEN)

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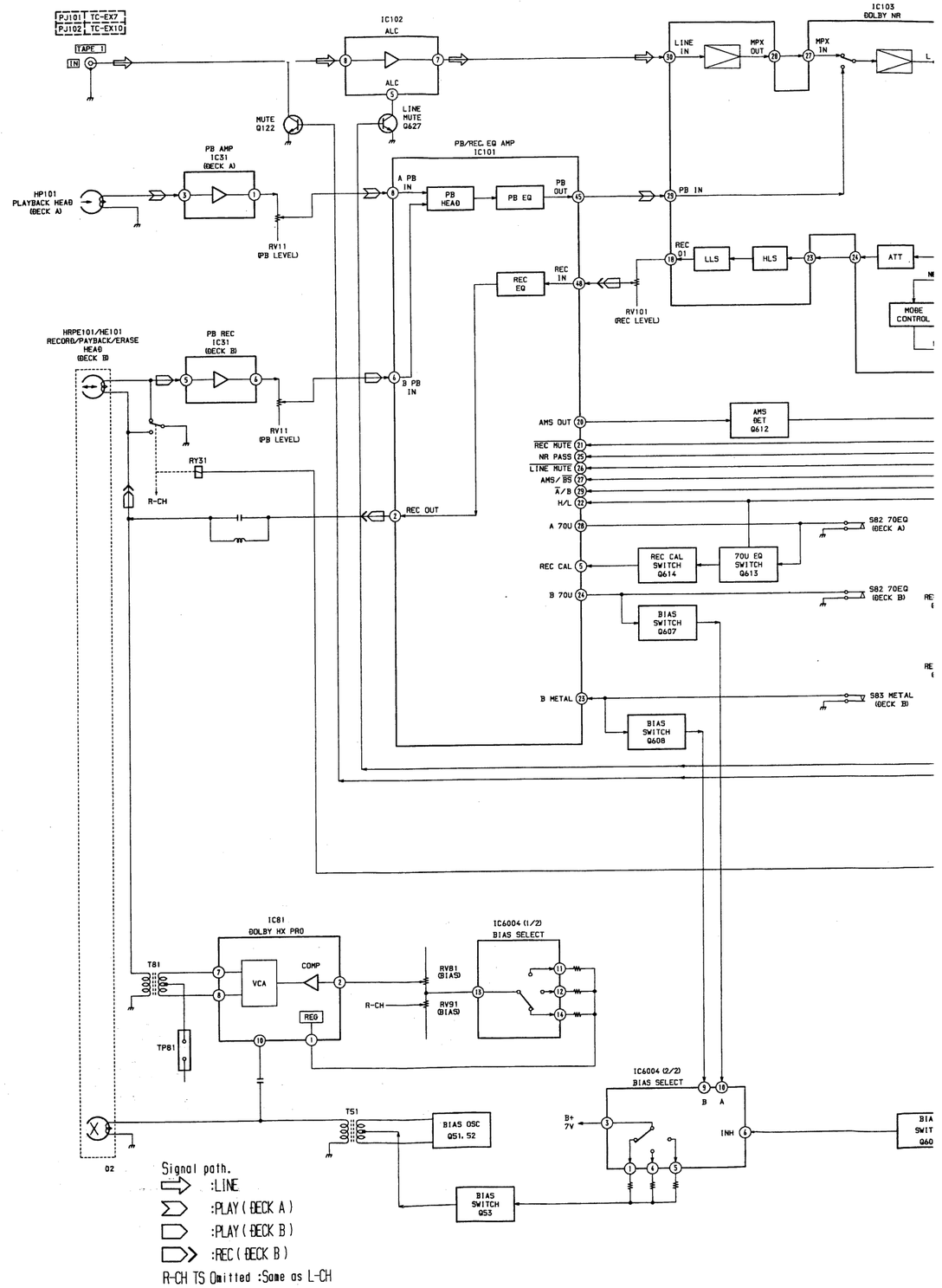
IC301 M38122M2-102FP FL DRIVE (PANEL BOARD)

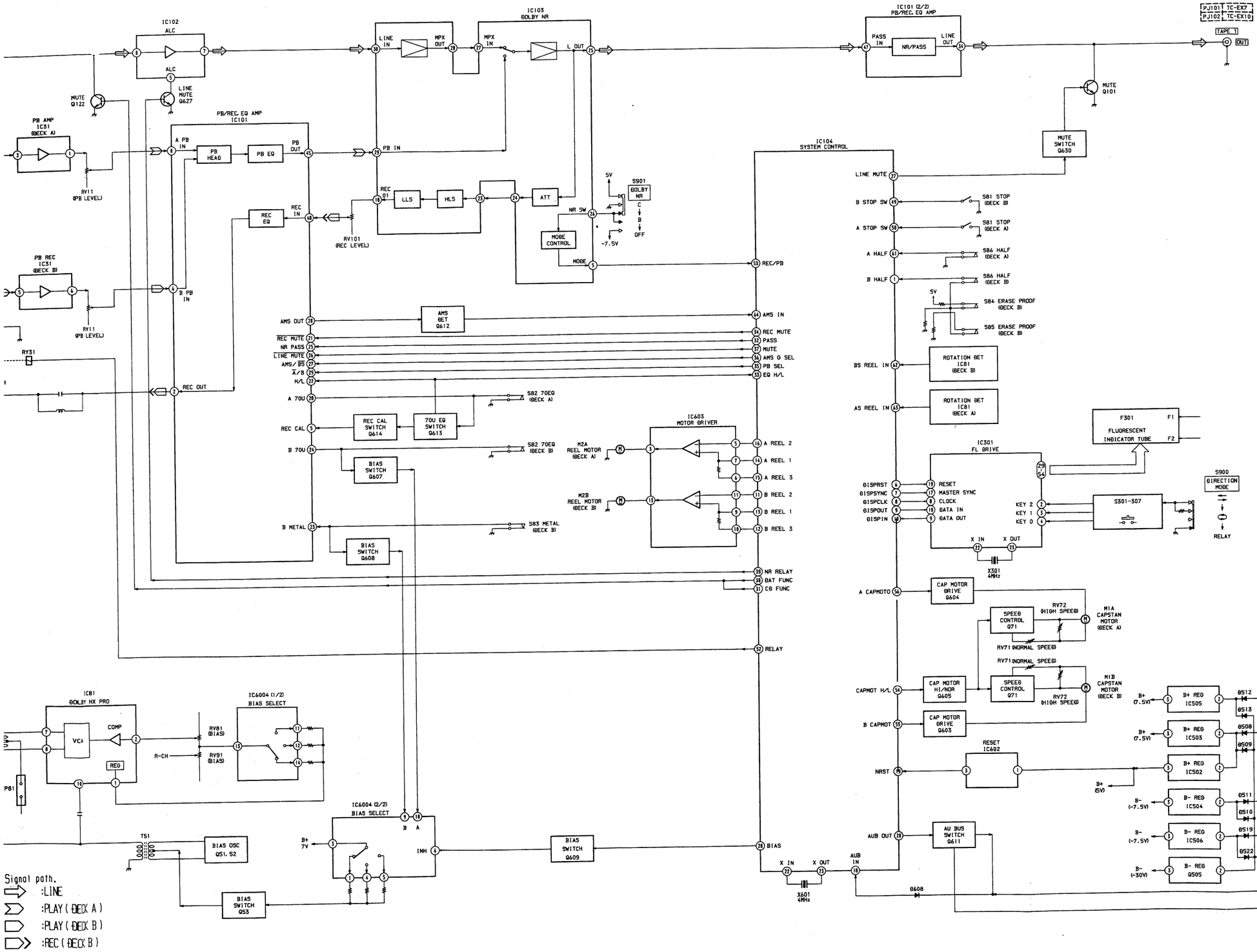
Pin No.	Pin name	I/O	Description
1	KEY3	I	Not used. (OPEN)
2	KEY2	I	Key input. (A/D converter analog input)
3	KEY1		
4	KEY0		
5	ALL ON	I	Not used. (+5V)
6	TEST MODE	I	Not used. (+5V)
7	VERSION	I	Not used. (+5V)
8	CLOCK	I	Clock input from IC104 (M38123M4-118FP)
9	DATA OUT	O	Data output to IC104 (M38123M4-118FP)
10	DATA IN	I	Data input from IC104 (M38123M4-118FP)
11	———	–	Not used. (OPEN)
12	———	–	Not used. (OPEN)
13	———	–	Not used. (OPEN)
14	———	–	Not used. (+5V)
15	———	–	Not used. (OPEN)
16	———	–	Not used. (OPEN)
17	MASTER SYNC	I	SYNC input from IC104 (M38123M4-118FP)
18	SIRCS	I	Not used. (OPEN)
19	RESET	I	Reset signal input.
20	———	–	Not used. (OPEN)
21	———	–	Not used. (OPEN)
22	X IN	I	Osillator connection pins. (4MHz)
23	X OUT	O	
24	Vss	–	GND.
25	———	–	Not used. (OPEN)
26	———	–	Not used. (OPEN)
27	———	–	Not used. (OPEN)
28	———	–	Not used. (OPEN)
29 – 48	P20 – P1	O	FL tube segment output.
49 – 54	1G – 6G	O	FL tube digital output.
55	———	–	Not used. (OPEN)
56	———	–	Not used. (OPEN)
57	Vcc	–	+5V power supply.
58	VEE	–	Minus voltage for FL tube.
59	AVss	–	GND
60	VREF	–	A/D converter reference power supply +5V.
61	———	–	Not used. (OPEN)
62	———	–	Not used. (OPEN)
63	———	–	Not used. (OPEN)
64	———	–	Not used. (OPEN)

SECTION 4
DIAGRAMS

4-1. BLOCK DIAGRAM



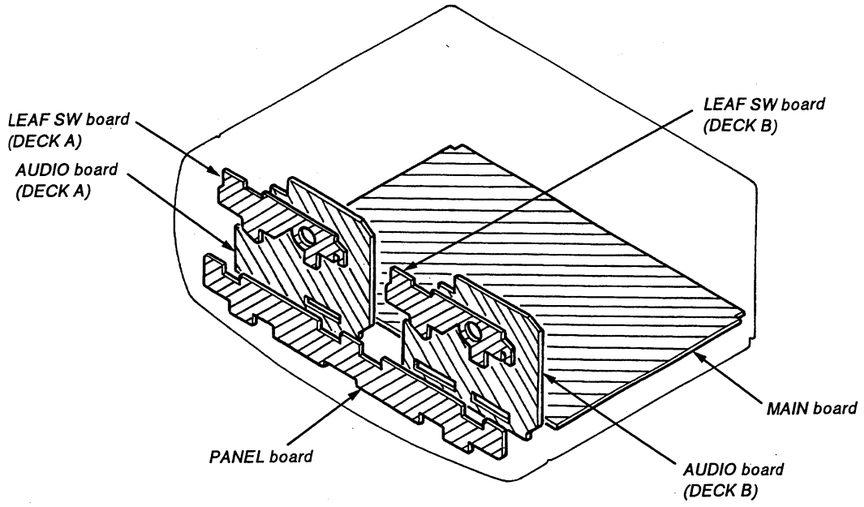
SECTION 4
DIAGRAMS



Signal path.
- ⇨ :LINE
- ⇨ :PLAY (DECK A)
- ⇨ :PLAY (DECK B)
- ⇨ :REC (DECK B)

R-CH TS Omitted :Same as L-CH

• CIRCUIT BOARD LOCATION



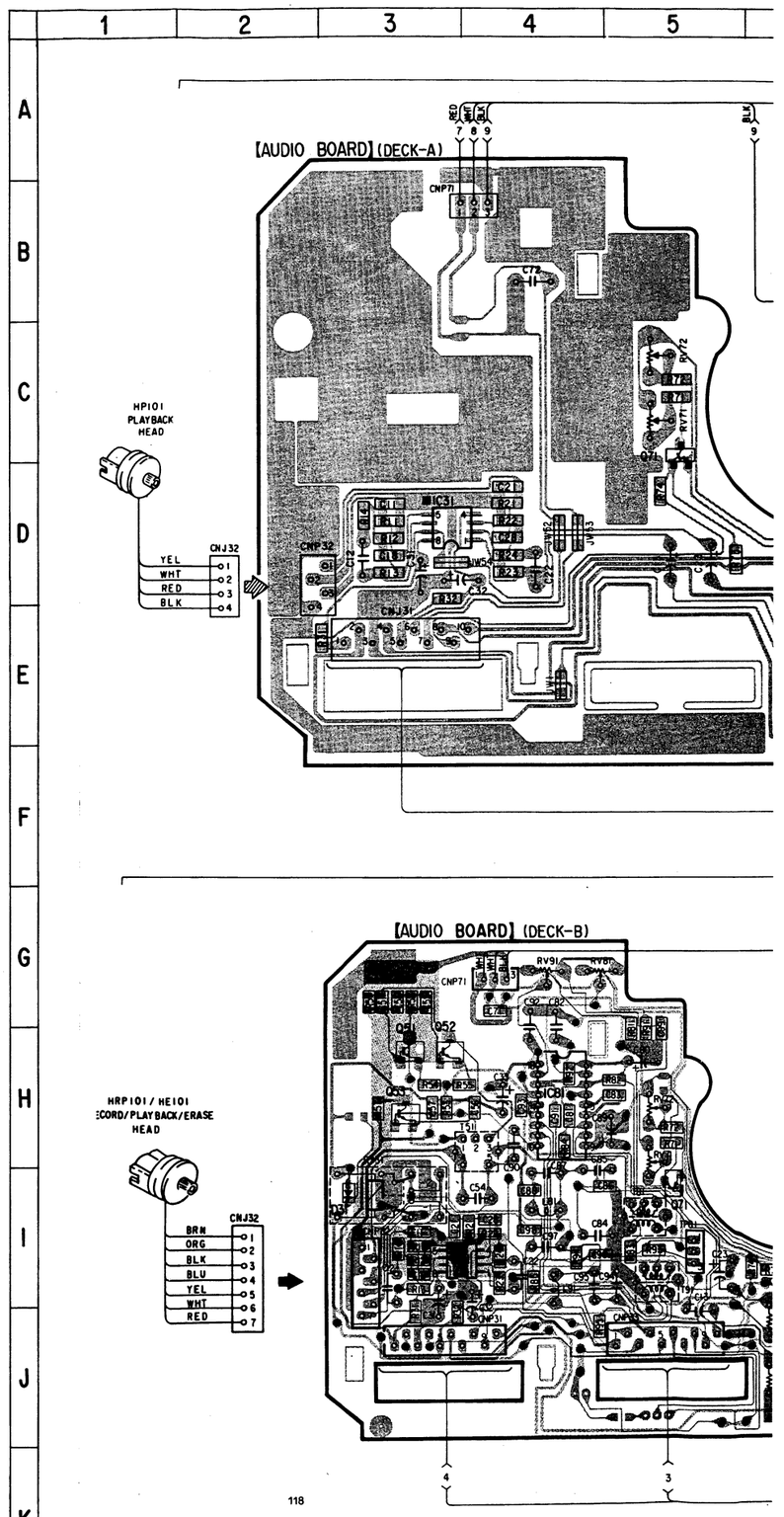
• SEMICONDUCTOR LOCATION

Ref. No.	Location	Ref. No.	Location
D31	I - 3	IC101	E - 15
D508	C - 22	IC102	C - 16
D509	C - 22	IC103	C - 15
D510	C - 21	IC104	E - 22
D511	C - 21	IC301	J - 18
D512	C - 20	IC502	C - 23
D513	C - 20	IC503	D - 22
D515	B - 22	IC504	D - 20
D516	B - 22	IC505	D - 19
D517	B - 23	IC506	D - 19
D518	C - 24	IC602	F - 23
D519	C - 20	IC603	E - 19
D520	D - 24	IC6004	G - 17
D521	D - 24		
D522	C - 20		
		Q51	H - 3
D523	D - 22	Q52	H - 3
D524	D - 20	Q53	H - 3
D525	B - 19	Q71	C - 5
D526	B - 19		(AUDIO DECK A)
D527	D - 19		I - 5 (AUDIO DECK B)
D528	D - 19		
D601	E - 23		
D602	E - 23		
D603	H - 21	Q101	D - 16
D604	H - 21	Q122	C - 18
		Q201	D - 16
D605	E - 18	Q222	B - 15
D606	F - 19	Q505	B - 23
D607	D - 16		
D608	D - 23	Q603	H - 19
D609	D - 23	Q604	H - 21
		Q605	G - 21
D610	F - 19	Q607	G - 18
D611	D - 22	Q608	G - 18
D620	E - 19		
		Q609	G - 18
		Q611	D - 23
IC31	D - 3 (AUDIO DECK A)	Q612	D - 16
		Q613	E - 17
	I - 3 (AUDIO DECK B)	Q614	E - 17
		Q627	C - 17
		Q630	D - 17
IC81	H - 4 (AUDIO DECK B)		
	C - 11 (LEAF SW DECK A)		
	H - 11 (LEAF SW DECK B)		

Note:

- ○— : parts extracted from the component side.
- ● : Through hole.
- ▒▒ : Pattern on the side which is seen.
- ▒▒ : Pattern of the rear side.
- Abbreviation
  CND : Canadian
  G : German
  IT : Italian
  AUS : Australian
  EA : Saudi Arabia

4-2. PRINTED WIRING BOARDS



LOCATION

Ref. No.	Location
IC101	E - 15
IC102	C - 16
IC103	C - 15
IC104	E - 22
IC301	J - 18
IC502	C - 23
IC503	D - 22
IC504	D - 20
IC505	D - 19
IC506	D - 19
IC602	F - 23
IC603	E - 19
IC6004	G - 17
Q51	H - 3
Q52	H - 3
Q53	H - 3
Q71	C - 5 (AUDIO DECK A)
	I - 5 (AUDIO DECK B)
Q101	D - 16
Q122	C - 18
Q201	D - 16
Q222	B - 15
Q505	B - 23
Q603	H - 19
Q604	H - 21
Q605	G - 21
Q607	G - 18
Q608	G - 18
Q609	G - 18
Q611	D - 23
Q612	D - 16
Q613	E - 17
Q614	E - 17
Q627	C - 17
Q630	D - 17

extracted from the component side.
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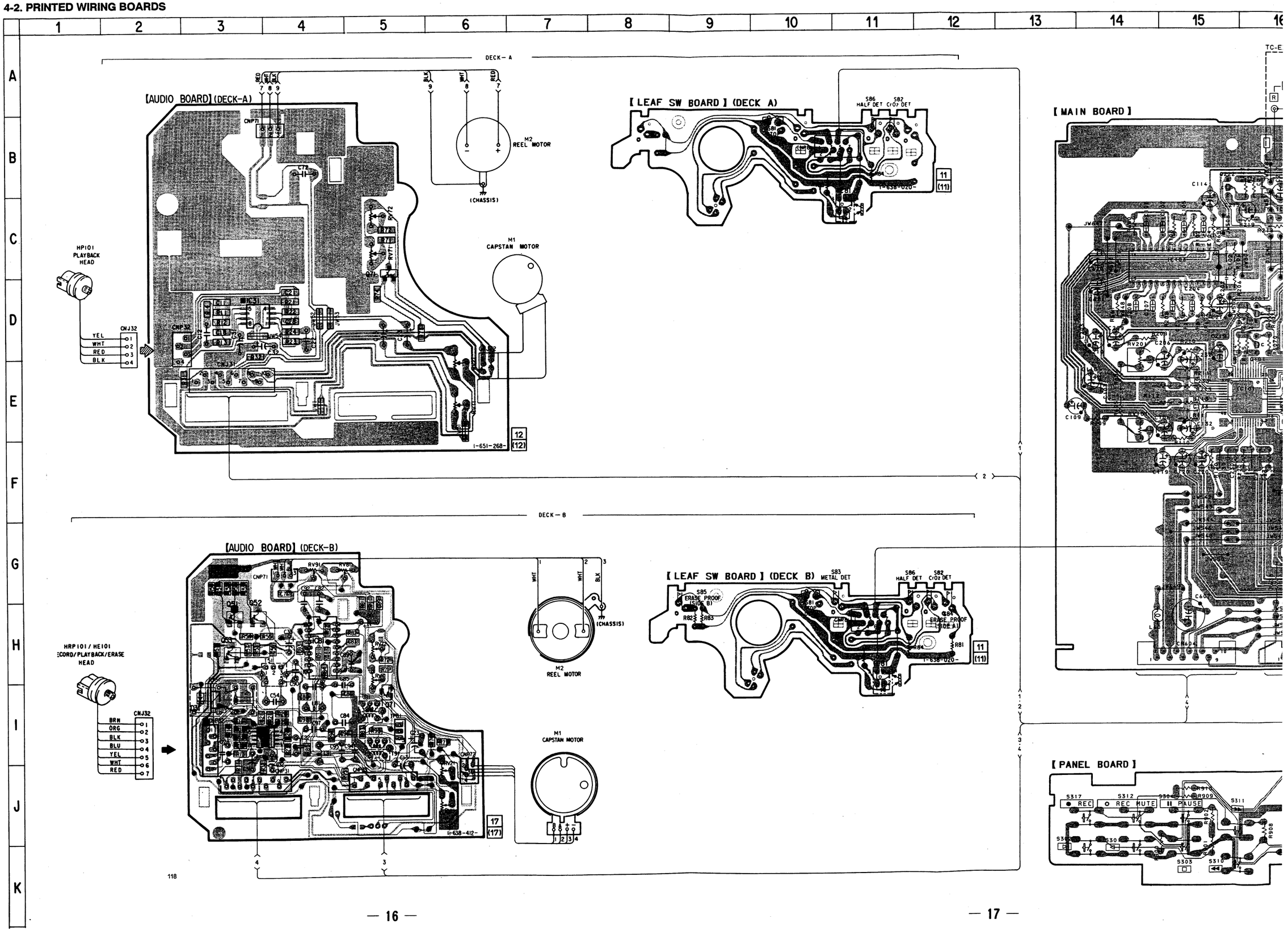
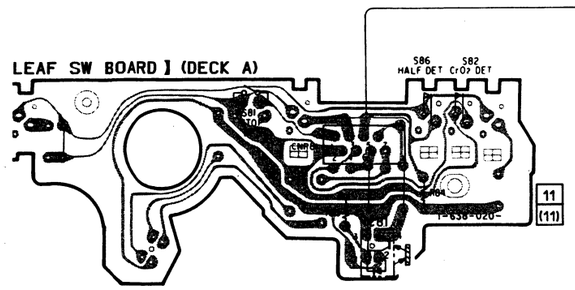
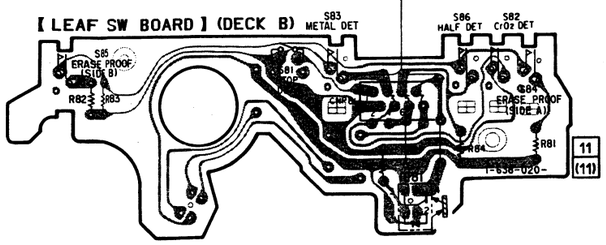
4-2. PRINTED WIRING BOARDS



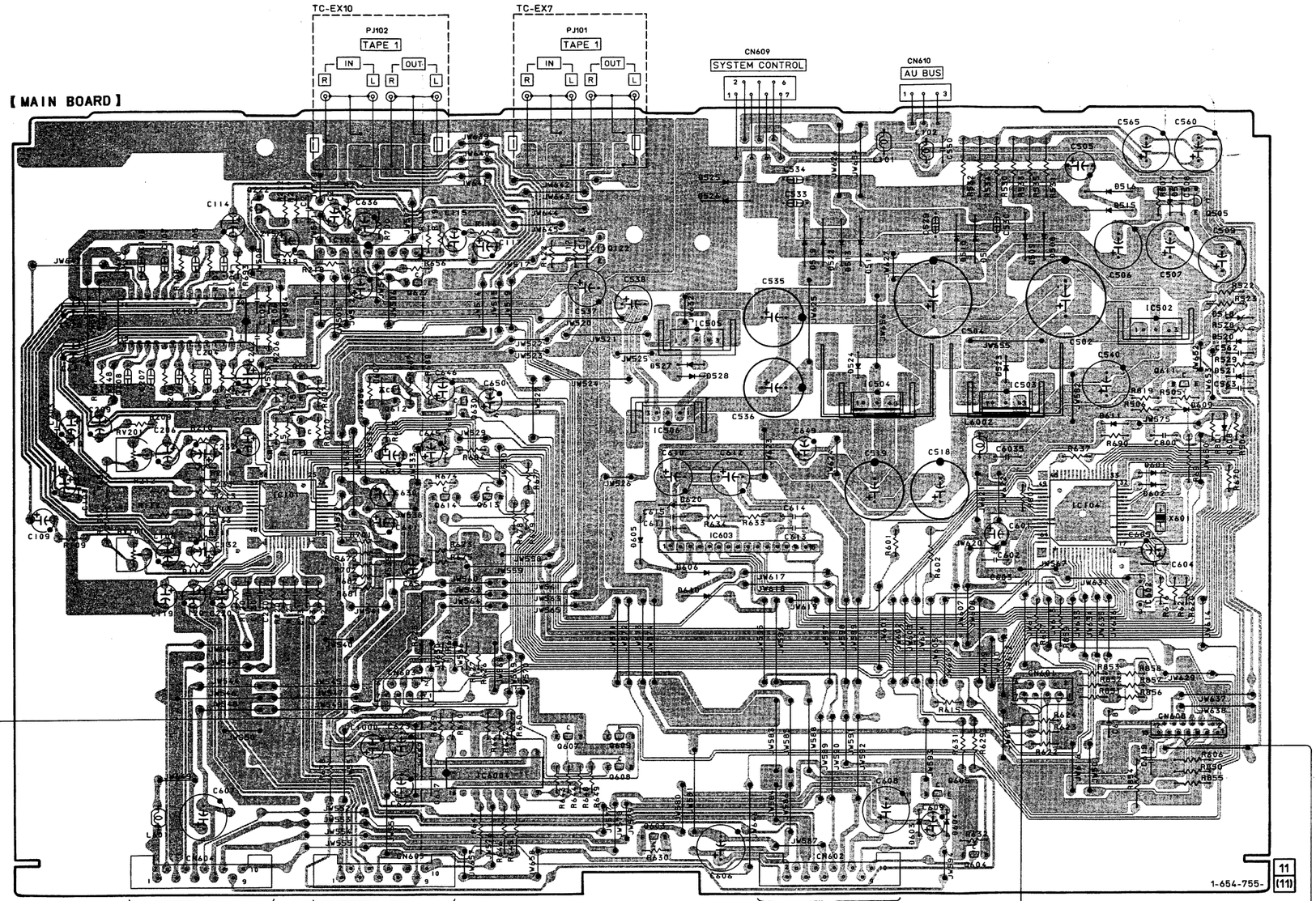
【LEAF SW BOARD】(DECK A)



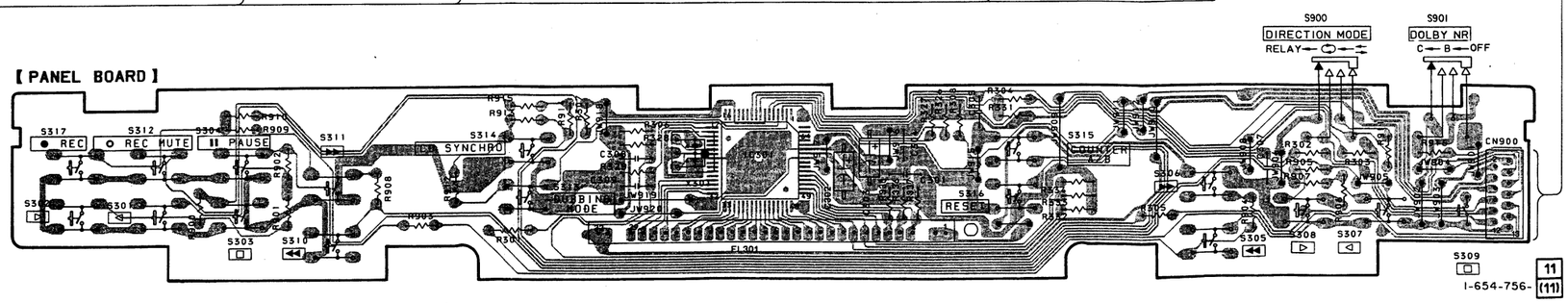
【LEAF SW BOARD】(DECK B)



【MAIN BOARD】



【PANEL BOARD】



4-3. SCHEMATIC DIAGRAM

● Refer to page 23 for IC Block Diagrams.

【 AUDIO BOARD 】(DECK A)

【 LEAF SW BOARD 】(DECK A)

【 MAIN BOARD 】

【 AUDIO BOARD 】(DECK B)

【 LEAF SW BOARD 】(DECK B)

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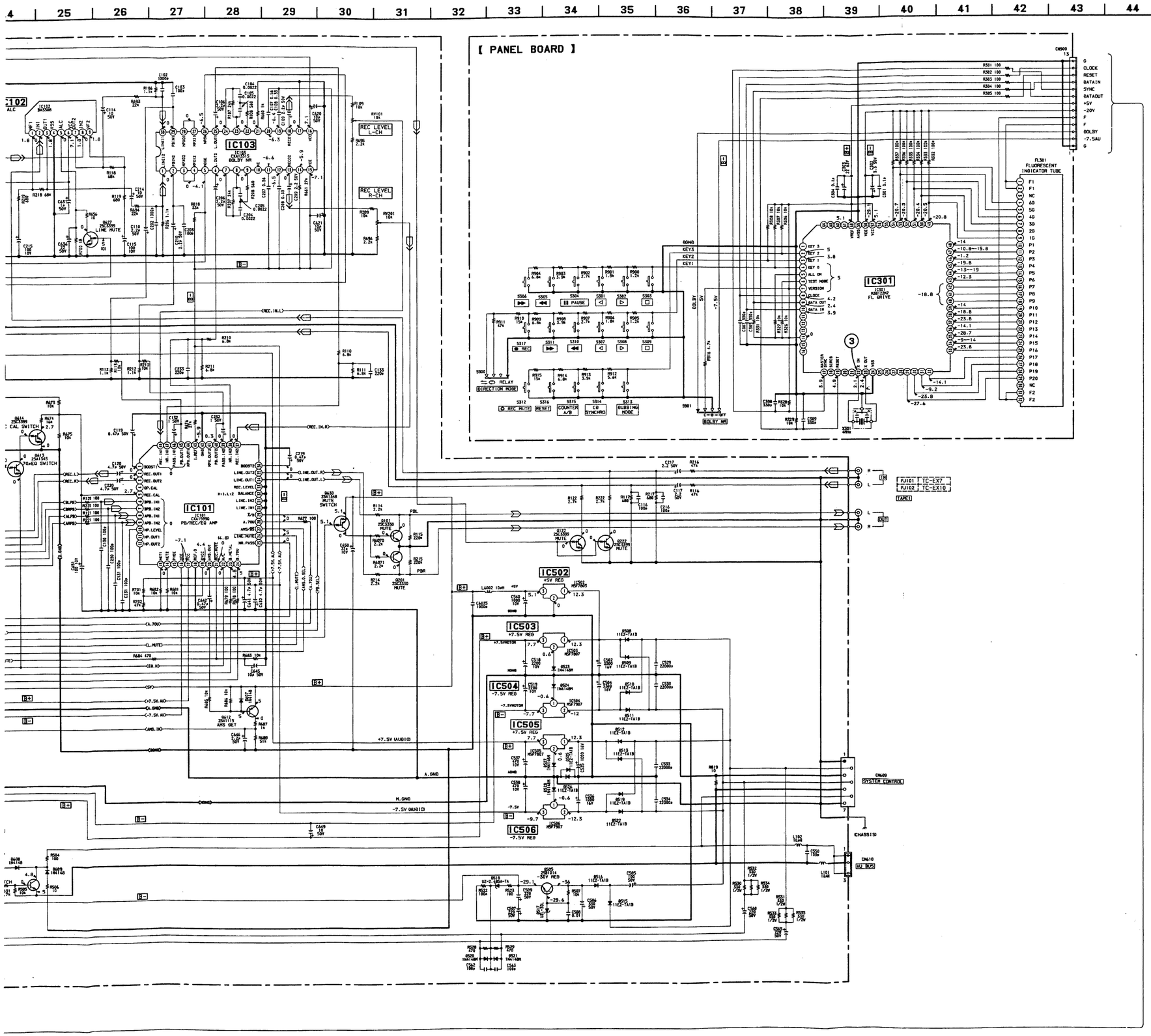
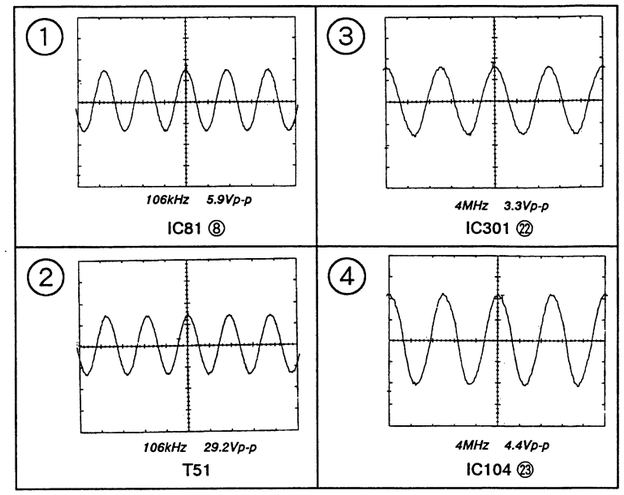


● WAVEFORMS

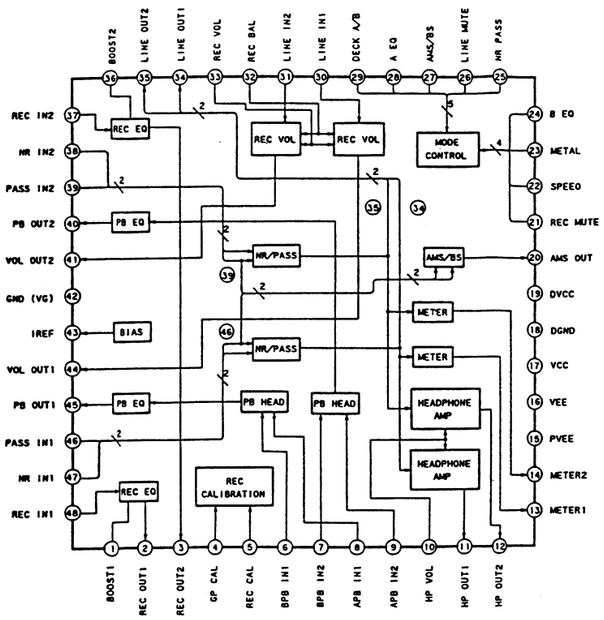


Note :

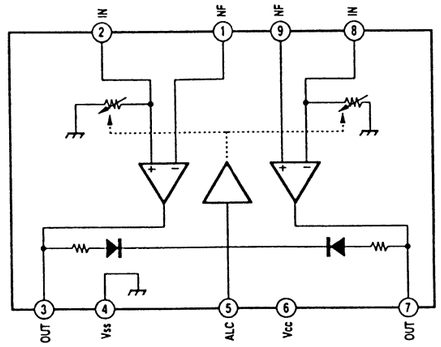
- All capacitors are in μ F unless otherwise noted. pF: μ μ F 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- △ : internal component.
- B+ : B+ Line
- B − : B − Line
- ▭ : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : STOP
  ( ) : REC
- Voltages are taken with a VOM (Input impedance 10M Ω). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ▷ : PB (DECK A)
  ▷ : PB (DECK B)
  ▷» : REC (DECK B)
- Abbreviation
  CND : Canadian
  G : German
  IT : Italian
  AUS : Australian
  EA : Saudi Arabia

• IC BLOCK DIAGRAMS

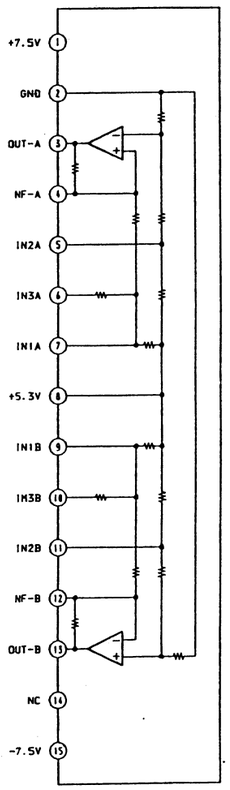
IC101 CXA1599Q



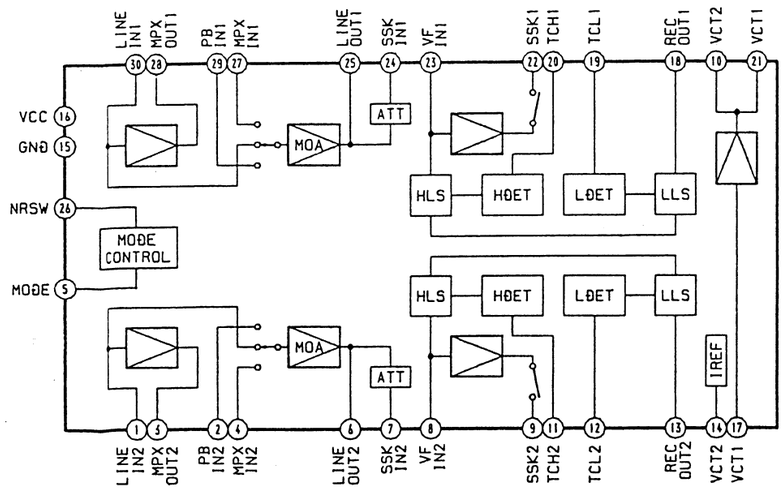
IC102 BA3308



IC603 TA8242AK



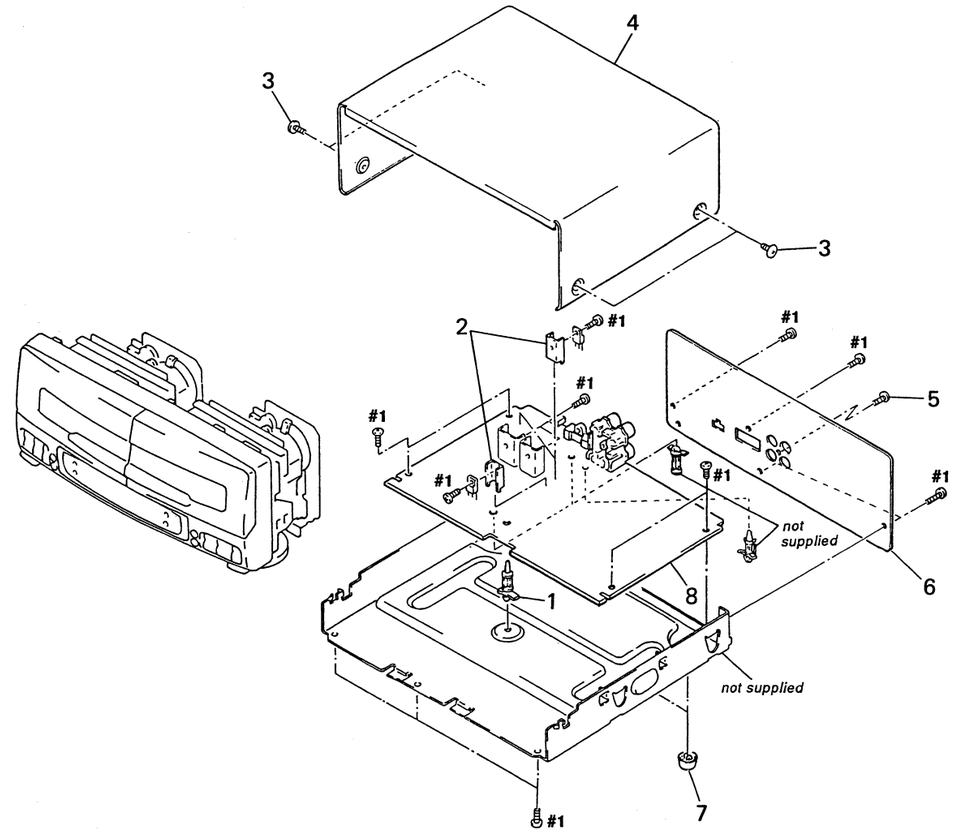
IC103 CXA1331S



SECTION 5
EXPLODED VIEWS

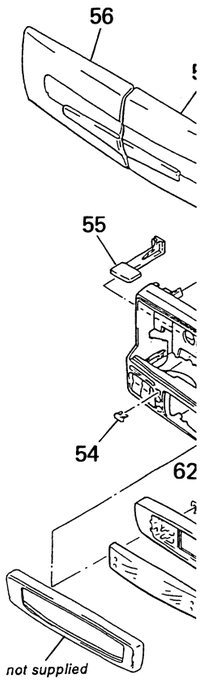
NOTE :
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " * "are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.

5-1. CHASSIS SECTION



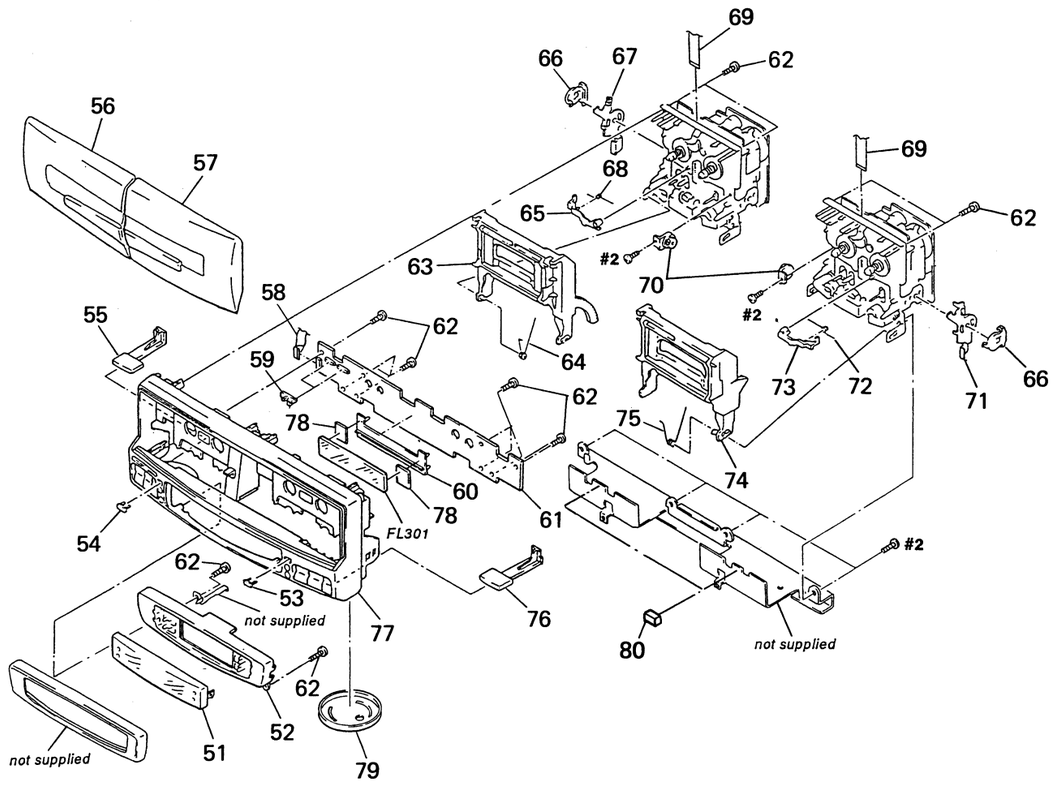
Ref.No.	Part No.	Description	Remark
* 1	3-349-025-41	HOLDER, PC BOARD	
* 2	3-309-144-21	HEAT SINK	
3	3-363-099-01	SCREW (CASE 3 TP2)	
4	3-919-558-11	CASE	
5	3-704-515-01	SCREW (BV/RING)	
* 6	3-919-578-11	PANEL, BACK (EX7)	
* 6	3-919-578-21	PANEL, BACK (EX10)	
7	4-965-822-01	FOOT	
* 8	A-2007-303-A	MAIN BOARD, COMPLETE (EX10)	
* 8	A-2007-305-A	MAIN BOARD, COMPLETE (EX7)	

5-2. FRONT PANEL SE



Ref.No.	Part No.	De
51	3-919-555-01	W
52	3-919-556-01	B/
53	3-919-573-01	C(
54	3-919-572-01	C(
55	3-919-574-01	SI
56	X-3369-490-1	L
57	X-3369-495-1	L
58	1-769-391-11	W
59	3-919-576-01	KI
* 60	3-919-591-01	H(
* 61	A-2007-304-A	P/
* 61	A-2007-306-A	P/
62	4-951-620-01	S(
63	X-3369-493-1	H(
64	4-959-231-01	SI
65	3-354-955-01	LI

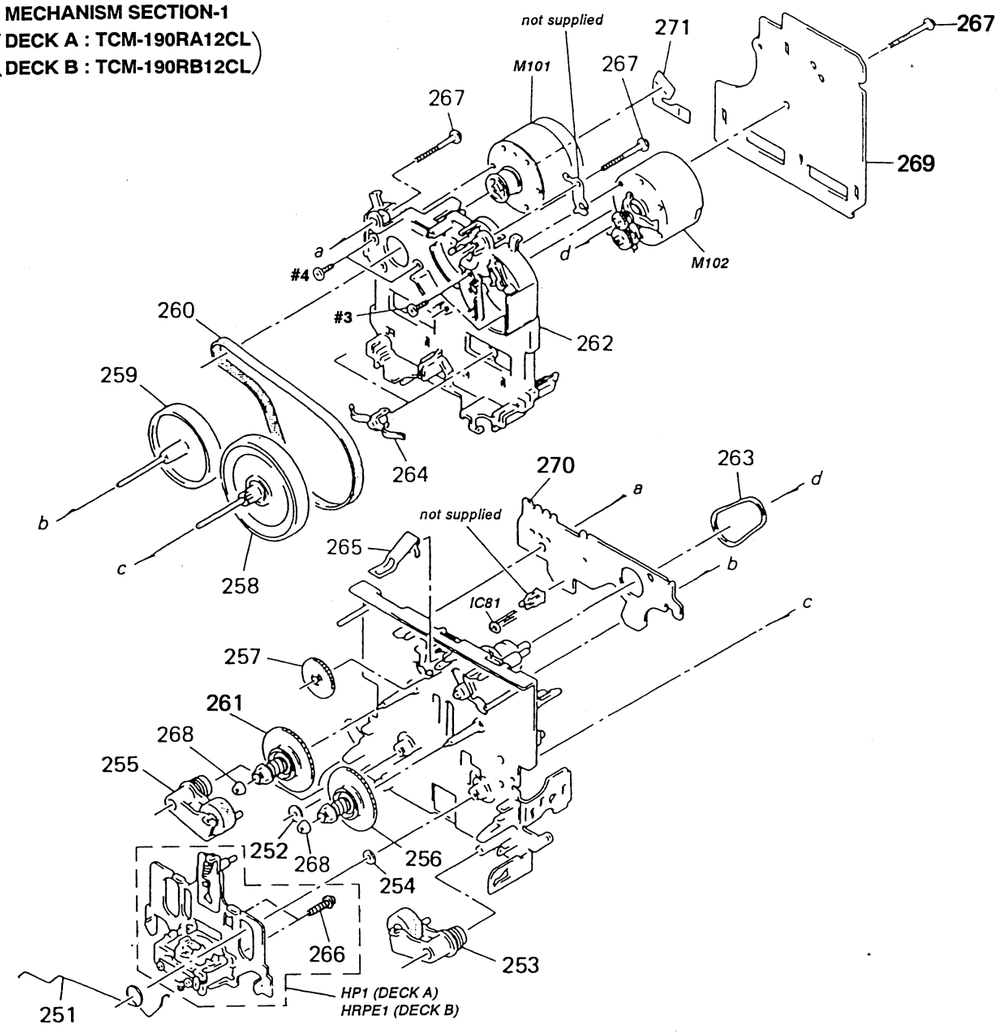
5-2. FRONT PANEL SECTION



Ref.No.	Part No.	Description	Remark
51	3-919-555-01	WINDOW (DISPLAY)	
52	3-919-556-01	BASE, WINDOW	
53	3-919-573-01	COVER (AZIMUTH B)	
54	3-919-572-01	COVER (AZIMUTH A)	
55	3-919-574-01	SLIDER (L)	
56	X-3369-490-1	LID (A) ASSY, CASSETTE	
57	X-3369-495-1	LID (B) ASSY, CASSETTE	
58	1-769-391-11	WIRE (FLAT TYPE) (13 CORE)	
59	3-919-576-01	KNOB (SLIDE)	
* 60	3-919-591-01	HOLDER (FL TUBE)	
* 61	A-2007-304-A	PANEL BOARD, COMPLETE (EX10)	Remark
* 61	A-2007-306-A	PANEL BOARD, COMPLETE (EX7)	Remark
62	4-951-620-01	SCREW (2.6×8), +BVTP	
63	X-3369-493-1	HOLDER (L) ASSY, CASSETTE	
64	4-959-231-01	SPRING (L), TORSION	
65	3-354-955-01	LEVER (EJ SAFTY LEVER L)	

Ref.No.	Part No.	Description	Remark
66	3-354-957-01	JOINT (LOCK LEVER)	
* 67	3-354-953-01	LEVER (LOCK LEVER L)	
68	3-354-961-01	SPRING (EJ SAFTY SPRING L)	
69	1-765-384-11	WIRE (FLAT TYPE) (7 CORE)	
70	3-354-963-01	DAMPER	
* 71	3-354-954-01	LEVER (LOCK LEVER R)	
72	3-354-962-01	SPRING (EJ SAFTY SPRING R)	
73	3-354-956-01	LEVER (EJ SAFTY LEVER R)	
74	X-3369-494-1	HOLDER (R) ASSY, CASSETTE	
75	4-959-232-01	SPRING (R), TORSION	
76	3-919-575-01	SLIDER (R)	
77	X-3369-492-2	PANEL ASSY, FRONT	
* 78	4-932-810-11	CUSHION (FL)	
79	4-972-656-01	FOOT (ORNAMENT)	
80	3-926-057-01	CUSHION (TCM)	
FL301	1-517-370-11	INDICATOR TUBE, FLUORESCENT	

5-3. MECHANISM SECTION-1
(DECK A : TCM-190RA12CL)
(DECK B : TCM-190RB12CL)

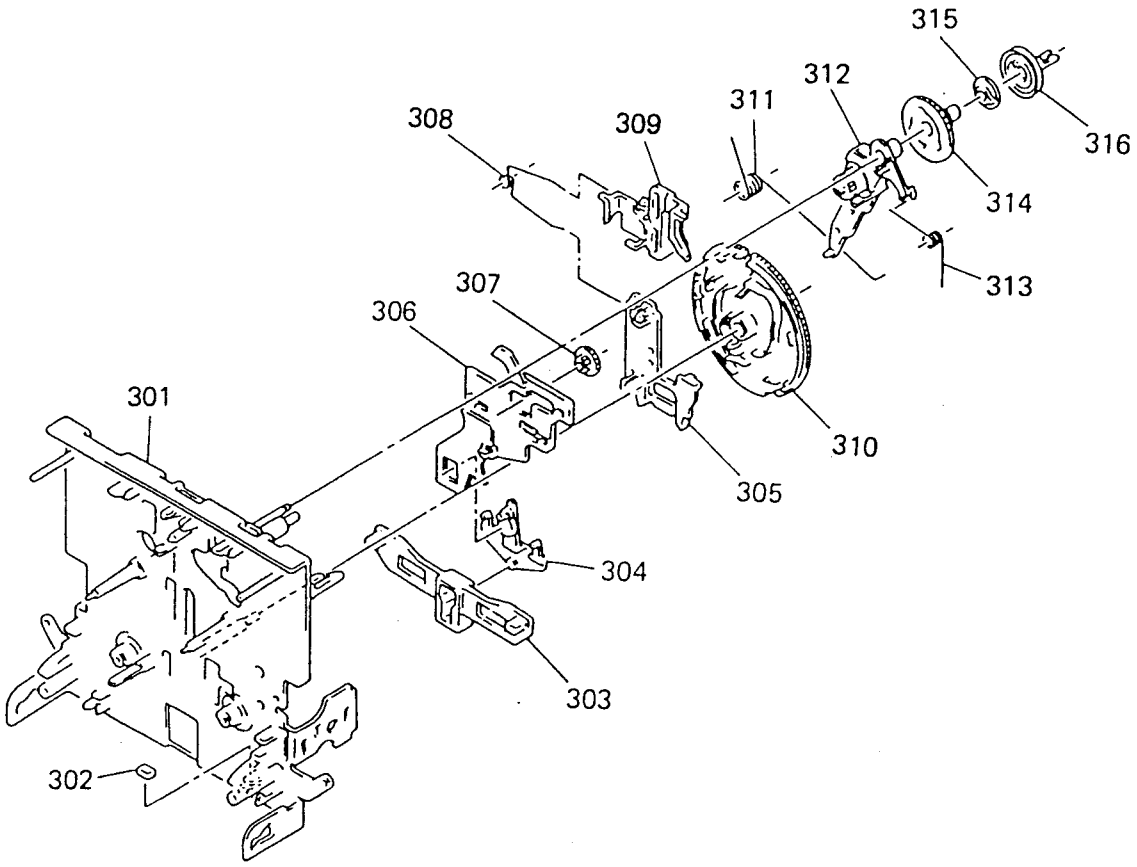


Ref.No.	Part No.	Description	Remark
251	3-907-362-01	SPRING, TORSION	
252	3-356-714-01	WASHER	
253	X-3366-047-1	LEVER (PINCH F) ASSY	
254	3-356-713-01	WASHER	
255	X-3366-048-1	LEVER (PINCH R) ASSY	
256	X-3366-971-1	TABLE (B) ASSY, REEL (DECK A)	
256	X-3369-508-1	TABLE (C) ASSY, REEL (DECK B)	
257	3-359-424-01	GEAR (REV GEAR)	
258	X-3367-629-1	FLYWHEEL (FWD) ASSY	
259	X-3359-410-1	FLYWHEEL (REV) ASSY (DECK A)	
259	X-3367-630-1	FLYWHEEL (REV) ASSY (DECK B)	
260	3-359-417-01	BELT (FLAT), CAPSTAN	
261	X-3366-970-1	TABLE ASSY, REEL	
262	3-359-436-11	BASE (THRUST RETAINER), FITTING	

Ref.No.	Part No.	Description	Remark
263	3-359-466-01	BELT (FR), SQUARE	
264	3-575-321-00	RETAINER, THRUST, CAPSTAN	
265	3-359-430-01	SPRING(CASSETTE RETAINER), LEAF	
266	3-388-848-01	SCREW (P2×6) (B TIGHT)	
267	3-359-414-01	SCREW (+PTPWH 2×23)	
268	3-362-308-01	CAP (REEL)	
* 269	A-2007-040-A	AUDIO BOARD, COMPLETE (DECK B)	
* 269	A-2007-266-A	AUDIO BOARD, COMPLETE (DECK A)	
* 270	1-638-020-11	LEAF SW BOARD	
271	1-638-983-11	MOTOR FLEXIBLE BOARD	
HP1	A-2003-757-A	BASE ASSY, HEAD (PB) (DECK A)	
HRPE1	A-2003-930-A	BASE ASSY, HEAD (PB/REC/ERASE) (DECK B)	
M101	X-3365-377-2	MOTOR ASSY (CAPSTAN)	
M202	X-3365-501-2	MOTOR ASSY (REEL)	

SONY-07615 / Druck:10

5-4. MECHANISM SECTION-2
(DECK A : TCM-190RA12CL)
(DECK B : TCM-190RB12CL)



Ref. No.	Part No.	Description	Remark
301	X-3359-415-1	CHASSIS ASSY, MECHANICAL	
302	3-359-469-01	SPACER	
303	3-359-425-01	SLIDER (REVERSE SLIDER)	
304	3-359-426-01	LEVER (REVERSE LEVER)	
305	3-359-427-01	SLIDER (LEVERSE SLIDER)	
* 306	3-359-415-01	SLIDER (TRIGGER SLIDER)	
307	3-359-448-01	GEAR (TRIGGER)	
308	3-359-454-01	SPRING, TORSION	

Ref. No.	Part No.	Description	Remark
309	3-359-429-01	SLIDER (BRAKE PLATE)	
310	3-359-420-01	GEAR (CAM GEAR)	
311	3-359-456-01	SPRING (TRIGGER SPRING), TORSION	
312	X-3366-569-1	ARM ASSY, FR	
313	3-924-185-11	SPRING (FR ARM), TORSION	
314	3-359-419-11	GEAR (FR GEAR)	
315	3-359-421-01	CLUTCH (REEL DISK)	
316	3-359-418-01	PULLEY (FR PULLEY)	

SECTION 6
ELECTRICAL PARTS LIST

AUDIO (DECK A) AUDIO (DECK B)

NOTE :
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms
  METAL : Metal-film resistor
  METAL OXIDE : Metal oxide-film resistor
  F : nonflammable
- Items marked " * "are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u : μ , for example :
  uA.... : μA.... , uPA.... : μPA....
  uPB.... : μPB.... , uPC.... : μPC....
  uPD.... : μPD....
- CAPACITORS
  uF : μF
- COILS
  uH : μH

When indicating parts by reference number, please include the board.

Ref.No.	Part No.	Description			Remark
*	A-2007-266-A	AUDIO BOARD, COMPLETE (DECK A)			
		**********			
		< CAPACITOR >			
C11	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C12	1-136-157-00	FILM	0.022uF	5%	50V
C13	1-124-234-00	ELECT	22uF	20%	16V
C18	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C21	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C22	1-136-157-00	FILM	0.022uF	5%	50V
C23	1-124-234-00	ELECT	22uF	20%	16V
C28	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C31	1-124-234-00	ELECT	22uF	20%	16V
C32	1-124-234-00	ELECT	22uF	20%	16V
C72	1-124-499-11	ELECT, NONPOLAR	1uF	20%	50V
		< CONNECTOR >			
* CNJ31	1-580-782-11	CONNECTOR, BOARD TO BOARD			
CNJ72	1-764-902-11	CONNECTOR, FFC/FPC 4P			
* CNP32	1-580-772-11	PIN, CONNECTOR (PC BOARD) 4P			
* CNP71	1-564-719-11	PIN, CONNECTOR (SMALL TYPE) 3P			
		< IC >			
IC31	8-759-106-02	IC uPC4570G2			
		< JUMPER RESISTOR >			
JW1	1-216-295-91	METAL CHIP	0	5%	1/10W
JW51-54	1-216-296-00	METAL CHIP	0	5%	1/8W
		< TRANSISTOR >			
Q71	8-729-216-22	TRANSISTOR 2SA1162-G			
		< RESISTOR >			
R11	1-216-099-00	METAL CHIP	120K	5%	1/10W
R12	1-216-025-91	METAL GLAZE	100	5%	1/10W
R13	1-216-100-00	METAL GLAZE	130K	5%	1/10W
R14	1-216-068-00	METAL CHIP	6.2K	5%	1/10W
R21	1-216-099-00	METAL CHIP	120K	5%	1/10W
R22	1-216-025-91	METAL GLAZE	100	5%	1/10W
R23	1-216-100-00	METAL GLAZE	130K	5%	1/10W
R24	1-216-068-00	METAL CHIP	6.2K	5%	1/10W
R31	1-216-033-00	METAL CHIP	220	5%	1/10W
R32	1-216-033-00	METAL CHIP	220	5%	1/10W
R71	1-216-082-00	METAL GLAZE	24K	5%	1/10W
R72	1-216-081-00	METAL CHIP	22K	5%	1/10W
R73	1-216-089-00	METAL CHIP	47K	5%	1/10W
R74	1-216-089-00	METAL CHIP	47K	5%	1/10W
		< VARIABLE RESISTOR >			
RV11	1-241-761-11	RES, ADJ, CARBON 1K (PLAYBACK LEVEL L)			
RV21	1-241-761-11	RES, ADJ, CARBON 1K (PLAYBACK LEVEL R)			
RV71	1-241-630-11	RES, ADJ, CARBON 10K (TAPE SPEED NOR)			
RV72	1-241-630-11	RES, ADJ, CARBON 10K (TAPE SPEED HI)			
**********					
*	A-2007-040-A	AUDIO BOARD, COMPLETE (DECK B)			
		**********			
		< CAPACITOR >			
C11	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C12	1-136-157-00	FILM	0.022uF	5%	50V
C13	1-124-234-00	ELECT	22uF	20%	16V
C18	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C21	1-163-131-00	CERAMIC CHIP	390PF	5%	50V
C22	1-136-157-00	FILM	0.022uF	5%	50V
C23	1-124-234-00	ELECT	22uF	20%	16V
C28	1-163-117-00	CERAMIC CHIP	100PF	5%	50V
C31	1-124-234-00	ELECT	22uF	20%	16V
C32	1-124-234-00	ELECT	22uF	20%	16V
C33	1-124-234-00	ELECT	22uF	20%	16V
C51	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C52	1-164-161-11	CERAMIC CHIP	0.0022uF	10%	100V
C53	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C54	1-136-601-11	FILM	0.01uF	5%	630V
C56	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C57	1-164-346-11	CERAMIC CHIP	1uF		16V
C71	1-164-346-11	CERAMIC CHIP	1uF		16V
C80	1-124-234-00	ELECT	22uF	20%	16V
C81	1-164-232-11	CERAMIC CHIP	0.01uF		50V

AUDIO (DECK B)

Ref.No.	Part No.	Description			Remark
C82	1-136-157-00	FILM	0.022uF	5%	50V
C83	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C84	1-136-478-11	FILM	470PF	5%	630V
C85	1-136-433-11	FILM	100PF	5%	630V
C86	1-163-143-00	CERAMIC CHIP	0.0012uF	5%	50V
C87	1-136-273-91	FILM	75PF	5%	630V
C88	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C89	1-124-234-00	ELECT	22uF	20%	16V
C90	1-107-584-11	CERAMIC	4PF	0.25PF	500V
C91	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C92	1-136-157-00	FILM	0.022uF	5%	50V
C93	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C94	1-136-478-11	FILM	470PF	5%	630V
C95	1-136-433-11	FILM	100PF	5%	630V
C96	1-163-143-00	CERAMIC CHIP	0.0012uF	5%	50V
C97	1-136-273-91	FILM	75PF	5%	630V
C98	1-163-003-11	CERAMIC CHIP	330PF	10%	50V
C99	1-164-005-11	CERAMIC CHIP	0.47uF		25V
		< CONNECTOR >			
* CNP31	1-580-782-11	CONNECTOR, BOARD TO BOARD			
* CNP32	1-580-781-11	PIN, CONNECTOR (PC BOARD) 7P			
* CNP33	1-580-782-11	CONNECTOR, BOARD TO BOARD			
* CNP71	1-564-719-11	PIN, CONNECTOR (SMALL TYPE) 3P			
CNP72	1-764-902-11	CONNECTOR, FFC/FPC 4P			
* CNP75	1-564-718-11	PIN, CONNECTOR (SMALL TYPE) 2P			
		< DIODE >			
D31	8-719-404-46	DIODE MA110			
		< IC >			
IC31	8-759-106-02	IC uPC4570G2			
IC81	8-759-106-56	IC uPC1297CA			
		< COIL >			
L81	1-410-780-11	INDUCTOR	27mH		
L91	1-410-780-11	INDUCTOR	27mH		
		< TRANSISTOR >			
Q51-53	8-729-808-01	TRANSISTOR	2SD1622-S		
Q71	8-729-216-22	TRANSISTOR	2SA1162-G		
		< RESISTOR >			
R11	1-216-099-00	METAL CHIP	120K	5%	1/10W
R12	1-216-025-91	METAL GLAZE	100	5%	1/10W
R13	1-216-100-00	METAL GLAZE	130K	5%	1/10W
R14	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R21	1-216-099-00	METAL CHIP	120K	5%	1/10W
R22	1-216-025-91	METAL GLAZE	100	5%	1/10W
R23	1-216-100-00	METAL GLAZE	130K	5%	1/10W
R24	1-216-067-00	METAL CHIP	5.6K	5%	1/10W
R31	1-216-033-00	METAL CHIP	220	5%	1/10W
R32	1-216-033-00	METAL CHIP	220	5%	1/10W
R33	1-216-065-00	METAL CHIP	4.7K	5%	1/10W
R51	1-216-097-00	METAL CHIP	100K	5%	1/10W
R52	1-216-097-00	METAL CHIP	100K	5%	1/10W
R53	1-216-073-00	METAL CHIP	10K	5%	1/10W
R54	1-216-309-00	METAL CHIP	5.6	5%	1/10W
R55	1-216-309-00	METAL CHIP	5.6	5%	1/10W
R57	1-216-298-00	METAL CHIP	2.2	5%	1/10W
R71	1-216-082-00	METAL GLAZE	24K	5%	1/10W
R72	1-216-081-00	METAL CHIP	22K	5%	1/10W
R73	1-216-089-00	METAL CHIP	47K	5%	1/10W
R74	1-216-089-00	METAL CHIP	47K	5%	1/10W
R81	1-216-073-00	METAL CHIP	10K	5%	1/10W
R82	1-216-085-00	METAL CHIP	33K	5%	1/10W
R83	1-216-001-00	METAL CHIP	10	5%	1/10W
R84	1-216-101-00	METAL CHIP	150K	5%	1/10W
R85	1-216-075-00	METAL CHIP	12K	5%	1/10W
R91	1-216-073-00	METAL CHIP	10K	5%	1/10W
R92	1-216-085-00	METAL CHIP	33K	5%	1/10W
R93	1-216-001-00	METAL CHIP	10	5%	1/10W
R94	1-216-101-00	METAL CHIP	150K	5%	1/10W
R95	1-216-075-00	METAL CHIP	12K	5%	1/10W
		< VARIABLE RESISTOR >			
RV11	1-241-761-11	RES, ADJ, CARBON 1K	(PLAYBACK LEVEL L)		
RV21	1-241-761-11	RES, ADJ, CARBON 1K	(PLAYBACK LEVEL R)		
RV71	1-241-630-11	RES, ADJ, CARBON 10K	(TAPE SPEED NOR)		
RV72	1-241-630-11	RES, ADJ, CARBON 10K	(TAPE SPEED HI)		
RV81	1-241-786-11	RES, ADJ, CARBON 22K	(REC BIAS L)		
RV91	1-241-786-11	RES, ADJ, CARBON 22K	(REC BIAS R)		
		< RELAY >			
RY31	1-515-913-11	RELAY			
		< TRANSFORMER >			
T51	1-406-417-11	COIL, BIAS OSCILLATION			
T81	1-433-381-11	TRANSFORMER, BIAS OSCILLATOR			
T91	1-433-381-11	TRANSFORMER, BIAS OSCILLATOR			
		< TEST PIN >			
* TP81	1-568-449-11	HOUSING, CONNECTOR (PC BOARD) 3P			

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LEAF SW (DECK A) LEAF SW (DECK B) MAIN

Ref. No.	Part No.	Description			Remark
*	1-638-020-11	LEAF SW BOARD (DECK A)			
		**********			
		< CONNECTOR >			
* CNP81	1-568-850-11	SOCKET, CONNECTOR 7P			
		< IC >			
IC81	8-749-924-10	IC PHONT REFLECTOR NJL5165K-B(H1)			
		< RESISTOR >			
R84	1-249-417-11	CARBON	1K	5% 1/4W	
R85	1-249-408-11	CARBON	180	5% 1/4W	
		< SWITCH >			
S81	1-571-958-11	SWITCH, PUSH (1 KEY) (STOP DET)			
S82	1-571-281-21	SWITCH, LEAF (CrO_2)			
S86	1-571-281-21	SWITCH, LEAF (HALF DET)			
**********					
*	1-638-020-11	LEAF SW BOARD (DECK B)			
		**********			
		< CONNECTOR >			
* CNP81	1-568-850-11	SOCKET, CONNECTOR 7P			
		< IC >			
IC81	8-749-924-10	IC PHONT REFLECTOR NJL5165K-B(H1)			
		< RESISTOR >			
R81	1-249-414-11	CARBON	560	5% 1/4W	
R82	1-247-818-11	CARBON	300	5% 1/4W	
R83	1-247-834-11	CARBON	1.3K	5% 1/4W	
R84	1-249-417-11	CARBON	1K	5% 1/4W	
R85	1-249-408-11	CARBON	180	5% 1/4W	
		< SWITCH >			
S81	1-571-958-11	SWITCH, PUSH (1 KEY) (STOP DET)			
S82	1-571-281-21	SWITCH, LEAF (CrO_2)			
S83	1-571-281-21	SWITCH, LEAF (METAL DET)			
S84	1-571-281-21	SWITCH, LEAF (ERASE PROOF A)			
S85	1-571-281-21	SWITCH, LEAF (ERASE PROOF B)			
S86	1-571-281-21	SWITCH, LEAF (HALF DET)			
**********					

Ref. No.	Part No.	Description			Remark
*	A-2007-303-A	MAIN BOARD, COMPLETE (EX10)			
*	A-2007-305-A	MAIN BOARD, COMPLETE (EX7)			
		**********			
		< CAPACITOR >			
C102	1-162-294-31	CERAMIC	0.001uF	10% 50V	
C103	1-162-282-31	CERAMIC	100PF	10% 50V	
C104	1-130-475-00	MYLAR	0.0022uF	5% 50V	
C105	1-130-475-00	MYLAR	0.0022uF	5% 50V	
C106	1-124-925-11	ELECT	2.2uF	20% 100V	
C107	1-136-174-00	FILM	0.56uF	5% 50V	
C108	1-136-171-00	FILM	0.33uF	5% 50V	
C109	1-124-925-11	ELECT	2.2uF	20% 100V	
C110	1-124-925-11	ELECT	2.2uF	20% 100V	
C114	1-124-907-11	ELECT	10uF	20% 50V	
C115	1-124-443-00	ELECT	100uF	20% 10V	
C116	1-162-282-31	CERAMIC	100PF	10% 50V	
C117	1-124-925-11	ELECT	2.2uF	20% 100V	
C119	1-124-902-00	ELECT	0.47uF	20% 50V	
C120	1-126-963-11	ELECT	4.7uF	20% 50V	
C130	1-162-282-31	CERAMIC	100PF	10% 50V	
C131	1-162-282-31	CERAMIC	100PF	10% 50V	
C132	1-124-903-11	ELECT	1uF	20% 50V	
C133	1-162-286-21	CERAMIC	220PF	10% 50V	
C202	1-162-294-31	CERAMIC	0.001uF	10% 50V	
C203	1-162-282-31	CERAMIC	100PF	10% 50V	
C204	1-130-475-00	MYLAR	0.0022uF	5% 50V	
C205	1-130-475-00	MYLAR	0.0022uF	5% 50V	
C206	1-124-925-11	ELECT	2.2uF	20% 100V	
C207	1-136-174-00	FILM	0.56uF	5% 50V	
C208	1-136-171-00	FILM	0.33uF	5% 50V	
C209	1-124-925-11	ELECT	2.2uF	20% 100V	
C210	1-124-925-11	ELECT	2.2uF	20% 100V	
C214	1-124-907-11	ELECT	10uF	20% 50V	
C215	1-124-443-00	ELECT	100uF	20% 10V	
C216	1-162-282-31	CERAMIC	100PF	10% 50V	
C217	1-124-925-11	ELECT	2.2uF	20% 100V	
C219	1-124-902-00	ELECT	0.47uF	20% 50V	
C220	1-126-963-11	ELECT	4.7uF	20% 50V	
C230	1-162-282-31	CERAMIC	100PF	10% 50V	
C231	1-162-282-31	CERAMIC	100PF	10% 50V	
C232	1-124-903-11	ELECT	1uF	20% 50V	
C233	1-162-286-21	CERAMIC	220PF	10% 50V	
C502	1-128-489-11	ELECT	3300uF	20% 16V	
C504	1-128-489-11	ELECT	3300uF	20% 16V	
C505	1-124-122-11	ELECT	100uF	20% 50V	
C506	1-124-920-11	ELECT	330uF	20% 50V	
C507	1-124-911-11	ELECT	220uF	20% 50V	
C508	1-162-306-11	CERAMIC	0.01uF	20% 16V	

MAIN

Ref.No.	Part No.	Description			Remark
C509	1-124-911-11	ELECT	220uF	20%	50V
C518	1-126-927-11	ELECT	2200uF	20%	10V
C519	1-126-927-11	ELECT	2200uF	20%	10V
C529	1-136-157-00	FILM	0.022uF	5%	50V
C530	1-136-157-00	FILM	0.022uF	5%	50V
C533	1-136-157-00	FILM	0.022uF	5%	50V
C534	1-136-157-00	FILM	0.022uF	5%	50V
C535	1-126-942-61	ELECT	1000uF	20%	16V
C536	1-126-942-61	ELECT	1000uF	20%	16V
C537	1-124-472-11	ELECT	470uF	20%	10V
C538	1-124-472-11	ELECT	470uF	20%	10V
C540	1-124-473-11	ELECT	1000uF	20%	10V
C550	1-162-282-31	CERAMIC	100PF	10%	50V
C560	1-124-911-11	ELECT	220uF	20%	50V
C562	1-162-282-31	CERAMIC	100PF	10%	50V
C563	1-162-282-31	CERAMIC	100PF	10%	50V
C565	1-124-911-11	ELECT	220uF	20%	50V
C601	1-124-443-00	ELECT	100uF	20%	10V
C602	1-164-159-11	CERAMIC	0.1uF		50V
C603	1-161-494-00	CERAMIC	0.022uF		25V
C604	1-164-159-11	CERAMIC	0.1uF		50V
C605	1-124-902-00	ELECT	0.47uF	20%	50V
C606-608					
	1-124-480-11	ELECT	470uF	20%	25V
C609	1-124-902-00	ELECT	0.47uF	20%	50V
C610	1-124-472-11	ELECT	470uF	20%	10V
C611	1-162-290-31	CERAMIC	470PF	10%	50V
C612	1-124-472-11	ELECT	470uF	20%	10V
C613	1-162-290-31	CERAMIC	470PF	10%	50V
C614	1-164-159-11	CERAMIC	0.1uF		50V
C615	1-164-159-11	CERAMIC	0.1uF		50V
C617	1-164-159-11	CERAMIC	0.1uF		50V
C618	1-162-288-31	CERAMIC	330PF	10%	50V
C619	1-164-159-11	CERAMIC	0.1uF		50V
C620	1-124-907-11	ELECT	10uF	20%	50V
C621	1-124-907-11	ELECT	10uF	20%	50V
C622	1-124-477-11	ELECT	47uF	20%	25V
C623	1-124-477-11	ELECT	47uF	20%	25V
C630	1-126-963-11	ELECT	4.7uF	20%	50V
C631	1-124-903-11	ELECT	1uF	20%	50V
C636	1-124-916-11	ELECT	22uF	20%	63V
C641	1-126-963-11	ELECT	4.7uF	20%	50V
C642	1-124-902-00	ELECT	0.47uF	20%	50V
C645	1-124-907-11	ELECT	10uF	20%	50V
C646	1-124-925-11	ELECT	2.2uF	20%	100V
C649	1-124-907-11	ELECT	10uF	20%	50V
C650	1-124-916-11	ELECT	22uF	20%	63V
C651	1-124-443-00	ELECT	100uF	20%	10V
C800	1-162-282-31	CERAMIC	100PF	10%	50V

Ref.No.	Part No.	Description			Remark
C1000	1-124-910-11	ELECT	47uF	20%	50V
C6035	1-162-294-31	CERAMIC	0.001uF	10%	50V
		< CONNECTOR >			
CN601	1-750-585-11	CONNECTOR, FFC/FPC 7P			
* CN602	1-691-916-11	CONNECTOR, BOARD TO BOARD			
CN603	1-750-585-11	CONNECTOR, FFC/FPC 7P			
* CN604	1-691-916-11	CONNECTOR, BOARD TO BOARD			
* CN605	1-691-916-11	CONNECTOR, BOARD TO BOARD			
CN608	1-770-165-11	CONNECTOR, FFC/FPC 13P			
CN609	1-770-158-21	HOUSING, CONNECTOR 7P (SYSTEM CONTROL)			
* CN610	1-565-561-11	PIN, CONNECTOR 3P (AU BUS)			
		< DIODE >			
D508-513					
	8-719-200-02	DIODE	10E2		
D515	8-719-200-02	DIODE	10E2		
D516	8-719-200-02	DIODE	10E2		
D517	8-719-934-22	DIODE	HZS30-2L		
D518	8-719-011-38	DIODE	UZ-2.4BSB-TA		
D519	8-719-200-02	DIODE	10E2		
D520	8-719-987-63	DIODE	1N4148M		
D521	8-719-987-63	DIODE	1N4148M		
D522	8-719-200-02	DIODE	10E2		
D523	8-719-987-63	DIODE	1N4148M		
D524	8-719-987-63	DIODE	1N4148M		
D525	8-719-200-02	DIODE	10E2		
D526	8-719-200-02	DIODE	10E2		
D527	8-719-987-63	DIODE	1N4148M		
D528	8-719-987-63	DIODE	1N4148M		
D601-604					
	8-719-987-63	DIODE	1N4148M		
D605	8-719-200-02	DIODE	10E2		
D606	8-719-200-02	DIODE	10E2		
D607-609					
	8-719-987-63	DIODE	1N4148M		
D610	8-719-200-02	DIODE	10E2		
D611	8-719-987-63	DIODE	1N4148M		
D620	8-719-011-40	DIODE	UZ-2.7BSA-TA		
		< IC >			
IC101	8-752-058-57	IC	CXA1599Q		
IC102	8-759-939-73	IC	BA3308		
IC103	8-752-059-55	IC	CXA1331S		
IC104	8-759-337-73	IC	M38123M4-118FP		
IC502	8-759-231-53	IC	TA7805S		
IC503	8-759-604-86	IC	M5F7807L		
IC504	8-759-604-90	IC	M5F7907L		
IC505	8-759-604-86	IC	M5F7807L		

MAIN

Ref. No.	Part No.	Description	Remark
IC506	8-759-604-90	IC M5F7907L	
IC602	8-759-510-54	IC PST572D	
IC603	8-759-266-35	IC TA8242AK	
IC6004	8-759-000-48	IC MC14052BCP	
		< COIL >	
L101	1-410-470-11	INDUCTOR 10uH	
L102	1-410-470-11	INDUCTOR 10uH	
L601	1-410-482-31	INDUCTOR 100uH	
L6002	1-410-470-11	INDUCTOR 10uH	
		< JACK >	
PJ101	1-695-188-31	JACK, PIN 4P (TAPE 1 IN/OUT)	(EX7)
PJ102	1-695-188-31	JACK, PIN 4P (TAPE 1 IN/OUT)	(EX10)
		< TRANSISTOR >	
Q101	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q122	8-729-900-89	TRANSISTOR DTC144ES	
Q201	8-729-119-78	TRANSISTOR 2SC2785-HFE	
Q222	8-729-900-89	TRANSISTOR DTC144ES	
Q505	8-729-118-01	TRANSISTOR 2SB1116-K	
Q603	8-729-801-93	TRANSISTOR 2SD1387	
Q604	8-729-801-93	TRANSISTOR 2SD1387	
Q605	8-729-900-80	TRANSISTOR DTC114ES	
Q607-609	8-729-900-89	TRANSISTOR DTC144ES	
Q611	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q612	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q613	8-729-900-65	TRANSISTOR DTA144ES	
Q614	8-729-900-89	TRANSISTOR DTC144ES	
Q627	8-729-900-89	TRANSISTOR DTC144ES	
Q630	8-729-900-61	TRANSISTOR DTA114ES	
		< RESISTOR >	
R106	1-247-832-11	CARBON 1.1K 5% 1/4W	
R107	1-247-864-11	CARBON 24K 5% 1/4W	
R108	1-249-414-11	CARBON 560 5% 1/4W	
R109	1-249-429-11	CARBON 10K 5% 1/4W	
R110	1-249-427-11	CARBON 6.8K 5% 1/4W	
R111	1-249-427-11	CARBON 6.8K 5% 1/4W	
R112	1-247-832-11	CARBON 1.1K 5% 1/4W	
R113	1-249-429-11	CARBON 10K 5% 1/4W	
R114	1-249-421-11	CARBON 2.2K 5% 1/4W	
R115	1-247-887-00	CARBON 220K 5% 1/4W	
R116	1-249-437-11	CARBON 47K 5% 1/4W	
R117	1-249-415-11	CARBON 680 5% 1/4W	
R118	1-249-439-11	CARBON 68K 5% 1/4W	
R119	1-249-415-11	CARBON 680 5% 1/4W	
R120	1-247-807-31	CARBON 100 5% 1/4W	
R121	1-247-807-31	CARBON 100 5% 1/4W	
R122	1-249-422-11	CARBON 2.7K 5% 1/4W	
R206	1-247-832-11	CARBON 1.1K 5% 1/4W	
R207	1-247-864-11	CARBON 24K 5% 1/4W	
R208	1-249-414-11	CARBON 560 5% 1/4W	
R209	1-249-429-11	CARBON 10K 5% 1/4W	
R210	1-249-427-11	CARBON 6.8K 5% 1/4W	
R211	1-249-427-11	CARBON 6.8K 5% 1/4W	
R212	1-247-832-11	CARBON 1.1K 5% 1/4W	
R213	1-249-429-11	CARBON 10K 5% 1/4W	
R214	1-249-421-11	CARBON 2.2K 5% 1/4W	
R215	1-247-887-00	CARBON 220K 5% 1/4W	
R216	1-249-437-11	CARBON 47K 5% 1/4W	
R217	1-249-415-11	CARBON 680 5% 1/4W	
R218	1-249-439-11	CARBON 68K 5% 1/4W	
R219	1-249-415-11	CARBON 680 5% 1/4W	
R220	1-247-807-31	CARBON 100 5% 1/4W	
R221	1-247-807-31	CARBON 100 5% 1/4W	
R222	1-249-422-11	CARBON 2.7K 5% 1/4W	
R504	1-247-807-31	CARBON 100 5% 1/4W	
R505	1-249-429-11	CARBON 10K 5% 1/4W	
R506	1-249-393-11	CARBON 10 5% 1/4W	
R507	1-249-429-11	CARBON 10K 5% 1/4W	
R522	1-249-441-11	CARBON 100K 5% 1/4W	
R523	1-247-807-31	CARBON 100 5% 1/4W	
R528	1-249-413-11	CARBON 470 5% 1/4W	
R529	1-249-413-11	CARBON 470 5% 1/4W	
R530-535	1-260-093-11	CARBON 330 5% 1/2W	
R601	1-247-807-31	CARBON 100 5% 1/4W	
R602	1-247-807-31	CARBON 100 5% 1/4W	
R606	1-249-435-11	CARBON 33K 5% 1/4W	
R607	1-247-807-31	CARBON 100 5% 1/4W	
R615	1-247-807-31	CARBON 100 5% 1/4W	
R616	1-247-863-91	CARBON 22K 5% 1/4W	
R620	1-249-441-11	CARBON 100K 5% 1/4W	
R621	1-249-417-11	CARBON 1K 5% 1/4W	
R622	1-249-421-11	CARBON 2.2K 5% 1/4W	
R623	1-249-421-11	CARBON 2.2K 5% 1/4W	
R624	1-249-434-11	CARBON 27K 5% 1/4W	
R625-627	1-249-421-11	CARBON 2.2K 5% 1/4W	
R628	1-249-434-11	CARBON 27K 5% 1/4W	
R629	1-249-421-11	CARBON 2.2K 5% 1/4W	
R630	1-249-429-11	CARBON 10K 5% 1/4W	
R631	1-249-421-11	CARBON 2.2K 5% 1/4W	
R632	1-249-429-11	CARBON 10K 5% 1/4W	
R633	1-247-807-31	CARBON 100 5% 1/4W	
R634	1-247-807-31	CARBON 100 5% 1/4W	

Ref.No.	Part No.	Description			Remark
R637	1-249-401-11	CARBON	47	5%	1/4W
R638	1-249-437-11	CARBON	47K	5%	1/4W
R639	1-249-429-11	CARBON	10K	5%	1/4W
R640	1-249-429-11	CARBON	10K	5%	1/4W
R641	1-249-417-11	CARBON	1K	5%	1/4W
R642	1-249-424-11	CARBON	3.9K	5%	1/4W
R643	1-247-807-31	CARBON	100	5%	1/4W
R644	1-247-807-31	CARBON	100	5%	1/4W
R645	1-249-425-11	CARBON	4.7K	5%	1/4W
R646	1-249-434-11	CARBON	27K	5%	1/4W
R647	1-249-430-11	CARBON	12K	5%	1/4W
R648-650					
	1-249-437-11	CARBON	47K	5%	1/4W
R656	1-249-393-11	CARBON	10	5%	1/4W
R660	1-249-417-11	CARBON	1K	5%	1/4W
R661	1-249-434-11	CARBON	27K	5%	1/4W
R670	1-247-863-91	CARBON	22K	5%	1/4W
R673	1-249-429-11	CARBON	10K	5%	1/4W
R674	1-247-860-11	CARBON	16K	5%	1/4W
R675	1-249-429-11	CARBON	10K	5%	1/4W
R676	1-249-434-11	CARBON	27K	5%	1/4W
R677-679					
	1-247-807-31	CARBON	100	5%	1/4W
R681-683					
	1-249-429-11	CARBON	10K	5%	1/4W
R684	1-249-413-11	CARBON	470	5%	1/4W
R685	1-249-429-11	CARBON	10K	5%	1/4W
R686	1-249-429-11	CARBON	10K	5%	1/4W
R687	1-249-417-11	CARBON	1K	5%	1/4W
R689	1-247-872-11	CARBON	51K	5%	1/4W
R690	1-249-429-11	CARBON	10K	5%	1/4W
R691	1-249-425-11	CARBON	4.7K	5%	1/4W
R693	1-247-863-91	CARBON	22K	5%	1/4W
R694	1-247-863-91	CARBON	22K	5%	1/4W
R695	1-249-421-11	CARBON	2.2K	5%	1/4W
R696	1-249-421-11	CARBON	2.2K	5%	1/4W
R700	1-247-903-00	CARBON	1M	5%	1/4W
R701	1-249-429-11	CARBON	10K	5%	1/4W
R702	1-249-437-11	CARBON	47K	5%	1/4W
R801	1-249-417-11	CARBON	1K	5%	1/4W
R807	1-247-863-91	CARBON	22K	5%	1/4W
R818	1-249-435-11	CARBON	33K	5%	1/4W
R819	1-249-393-11	CARBON	10	5%	1/4W
R850-853					
	1-247-863-91	CARBON	22K	5%	1/4W
R854	1-249-425-11	CARBON	4.7K	5%	1/4W
R855-859					
	1-247-807-31	CARBON	100	5%	1/4W
R6070	1-249-421-11	CARBON	2.2K	5%	1/4W
R6071	1-249-421-11	CARBON	2.2K	5%	1/4W

Ref.No.	Part No.	Description			Remark
		< VARIABLE RESISTOR >			
RV101	1-238-600-11	RES, ADJ, CARBON 10K (RECORD LEVEL)			
RV201	1-238-600-11	RES, ADJ, CARBON 10K (RECORD LEVEL)			
		< VIBRATOR >			
X601	1-577-358-21	VIBRATOR, CERAMIC (4MHz)			
**********					
*	A-2007-304-A	PANEL BOARD, COMPLETE (EX10)			
*	A-2007-306-A	PANEL BOARD, COMPLETE (EX7)			
		**********			
*	3-919-591-01	HOLDER (FL TUBE)			
*	4-932-810-11	CUSHION (FL)			
		< CAPACITOR >			
C301	1-164-159-11	CERAMIC	0.1uF		50V
C302	1-110-582-21	ELECT	3.3uF	20%	50V
C303	1-110-585-21	ELECT	22uF	20%	63V
C304	1-164-159-11	CERAMIC	0.1uF		50V
C305	1-162-288-31	CERAMIC	330PF	10%	50V
C307-309					
	1-162-288-31	CERAMIC	330PF	10%	50V
		< CONNECTOR >			
CN900	1-770-063-11	CONNECTOR (FFC) 13P			
		< INDICATOR TUBE >			
FL301	1-517-370-11	INDICATOR TUBE, FLUORESCENT			
		< IC >			
IC301	8-759-342-15	IC M38122M2-102FP			
		< RESISTOR >			
R301-305					
	1-247-807-31	CARBON	100	5%	1/4W
R306-308					
	1-249-429-11	CARBON	10K	5%	1/4W
R326-329					
	1-249-429-11	CARBON	10K	5%	1/4W
R331	1-249-429-11	CARBON	10K	5%	1/4W
R332-337					
	1-249-441-11	CARBON	100K	5%	1/4W
R900	1-249-418-11	CARBON	1.2K	5%	1/4W
R901	1-249-420-11	CARBON	1.8K	5%	1/4W
R902	1-249-422-11	CARBON	2.7K	5%	1/4W
R903	1-249-424-11	CARBON	3.9K	5%	1/4W
R904	1-249-427-11	CARBON	6.8K	5%	1/4W

PANEL

Ref.No.	Part No.	Description			Remark
R905	1-249-418-11	CARBON	1.2K	5%	1/4W
R906	1-249-420-11	CARBON	1.8K	5%	1/4W
R907	1-249-422-11	CARBON	2.7K	5%	1/4W
R908	1-249-424-11	CARBON	3.9K	5%	1/4W
R909	1-249-427-11	CARBON	6.8K	5%	1/4W
R910	1-249-431-11	CARBON	15K	5%	1/4W
R911	1-249-437-11	CARBON	47K	5%	1/4W
R912	1-249-426-11	CARBON	5.6K	5%	1/4W
R913	1-249-424-11	CARBON	3.9K	5%	1/4W
R914	1-249-427-11	CARBON	6.8K	5%	1/4W
R915	1-249-431-11	CARBON	15K	5%	1/4W
R916	1-249-425-11	CARBON	4.7K	5%	1/4W
		< SWITCH >			
S301	1-554-303-21	SWITCH, TACTILE	(◁) (DECK B)		
S302	1-554-303-21	SWITCH, TACTILE	(▷) (DECK B)		
S303	1-554-303-21	SWITCH, TACTILE	(□) (DECK B)		
S304	1-554-303-21	SWITCH, TACTILE	(PAUSE)		
S305	1-554-303-21	SWITCH, TACTILE	(◀◀) (DECK A)		
S306	1-554-303-21	SWITCH, TACTILE	(▶▶) (DECK A)		
S307	1-554-303-21	SWITCH, TACTILE	(◁) (DECK A)		
S308	1-554-303-21	SWITCH, TACTILE	(▷) (DECK A)		
S309	1-572-184-11	SWITCH, KEYBOARD	(□) (DECK A)		
S310	1-554-303-21	SWITCH, TACTILE	(◀◀) (DECK B)		
S311	1-554-303-21	SWITCH, TACTILE	(▶▶) (DECK B)		
S312	1-554-303-21	SWITCH, TACTILE	(REC MUTE)		
S313	1-554-303-21	SWITCH, TACTILE	(DUBBING MODE)		
S314	1-554-303-21	SWITCH, TACTILE	(CD SYNCHRO)		
S315	1-554-303-21	SWITCH, TACTILE	(COUNTER A/B)		
S316	1-554-303-21	SWITCH, TACTILE	(RESET)		
S317	1-554-303-21	SWITCH, TACTILE	(REC)		
S900	1-762-205-11	SWITCH, SLIDE	(DIRECTION MODE)		
S901	1-762-205-11	SWITCH, SLIDE	(DOLBY NR)		
		< VIBRATOR >			
X301	1-760-534-11	VIBRATOR, CERAMIC (4MHz)			

****

MISCELLANEOUS
****

58	1-769-391-11	WIRE (FLAT TYPE) (13 CORE)	
69	1-765-384-11	WIRE (FLAT TYPE) (7 CORE)	
271	1-638-983-11	MOTOR FLEXIBLE BOARD	
HP1	A-2003-757-A	BASE ASSY, HEAD (PB) (DECK A)	
HRPE1	A-2003-930-A	BASE ASSY, HEAD (PB/REC/ERASE)	(DECK B)
M101	X-3365-377-2	MOTOR ASSY (CAPSTAN)	
M202	X-3365-501-2	MOTOR ASSY (REEL)	

****

Ref.No.	Part No.	Description	Remark

****
HARDWARE LIST
****

#1	7-685-646-79	SCREW +BVTP 3×8 TYPE2 N-S	
#2	7-621-770-67	SCREW +PTT 2.6×6 (S)	
#3	7-627-556-08	SCREW +P 2.6×2.8	
#4	7-621-775-00	SCREW +B 2.6×3	

TC-EX7/EX10

SONY

SERVICE MANUAL

AEP Model
UK Model
TC-EX7/EX10
E Model
Australian Model
TC-EX10

CORRECTION-1

Correct your service manual as shown below.

____ (Under line) : indicates corrected portion.

Page	INCORRECT			CORRECT		
	Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
26, 34	M202	X-3365-501-2	MOTOR ASSY (REEL)	M102	X-3363-501-2	MOTOR ASSY (REEL)

(RPC-96023)

9-960-222-91

Sony Corporation
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Home A&V Products Div.

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Quality Engineering Dept.

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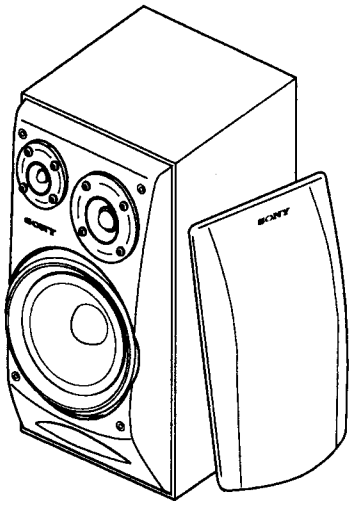
SS-EX70

SERVICE MANUAL

AEP Model
UK Model



LEFT CHANNEL

SPECIFICATIONS

System:	3-way-speaker system
Speaker units:	Woofer: 16 cm, cone type
	Tweeter: 2.5 cm, dome type
	Super-Tweeter: 2 cm, dome type
Enclosure type:	Bass Reflex
Rated impedance:	6 Ω
Power handling capacity:	Maximum input power 120 W
Sensitivity:	86 dB (1 W, 1 m)
Effective frequency range:	35 Hz - 20,000 Hz
Dimensions:	Approx. 224 x 408 x 285 mm (w/h/d)
Mass:	Approx. 5.6 kg per speaker, net

Design and specifications subject to change without notice.

MICROFILM

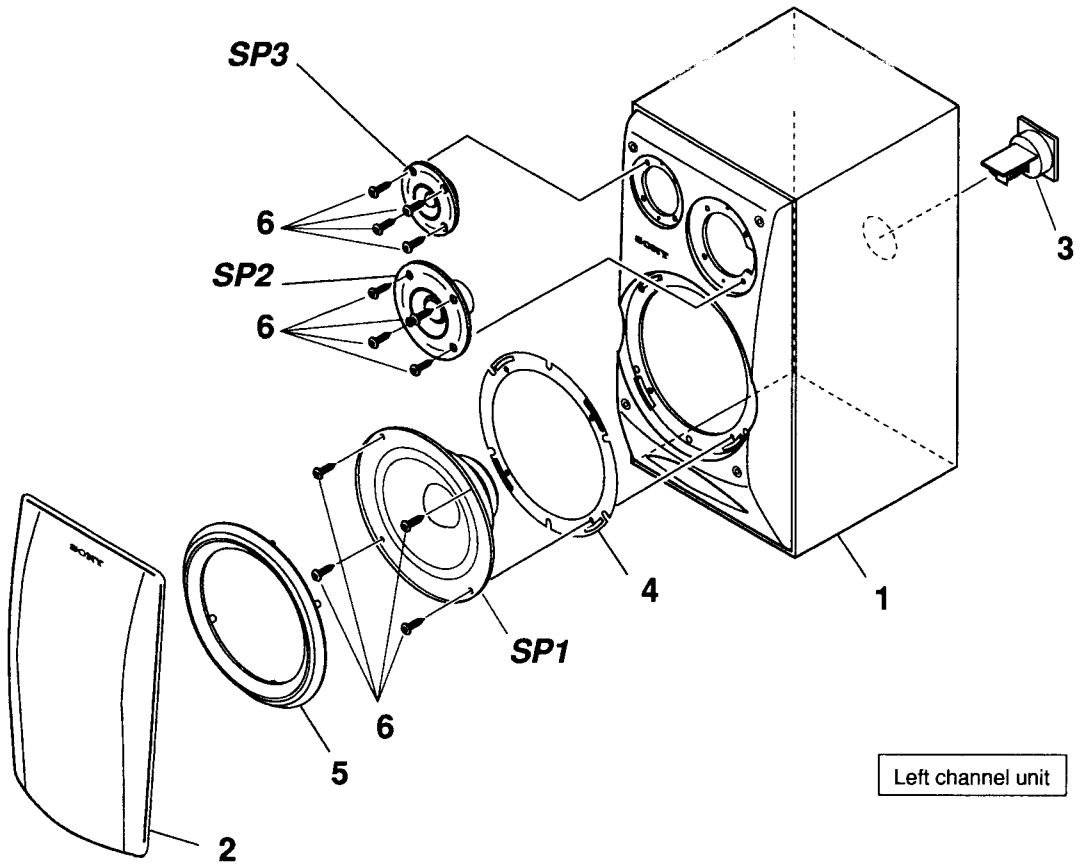
SPEAKER SYSTEM

SONY®

1. EXPLODED VIEW AND PARTS LIST

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.



Ref. No.	Part No.	Description	Remark
1	X-4945-851-1	SPEAKER CABINET (L) ASSY	
	X-4945-852-1	SPEAKER CABINET (R) ASSY	
2	X-4945-850-1	GRILLE FRAME ASSY	
3	1-589-714-11	MOUNTED P.C.B.	
4	4-972-802-01	GASKET (W)	
5	4-972-805-01	COSMETIC FRAME (W)	
6	4-971-744-01	SCREW P 3.5 X 20 T15	
SP1	1-504-839-11	SPEAKER (Woofer)	
SP2	1-504-838-11	SPEAKER (Tweeter)	
SP3	1-504-835-11	SPEAKER (Super-Tweeter)	

Ref. No.	Part No.	Description	Remark
		<ACCESSORIES & PACKING MATERIALS>	
*	4-972-820-01	CARTON	
*	4-972-813-01	CUSHION (TF)	
*	4-972-814-01	CUSHION (BF)	
*	4-972-815-01	CUSHION (R)	
	3-798-293-11	INSTRUCTION MANUAL	
	1-751-495-11	SPEAKER CORD	

9-960-142-11

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